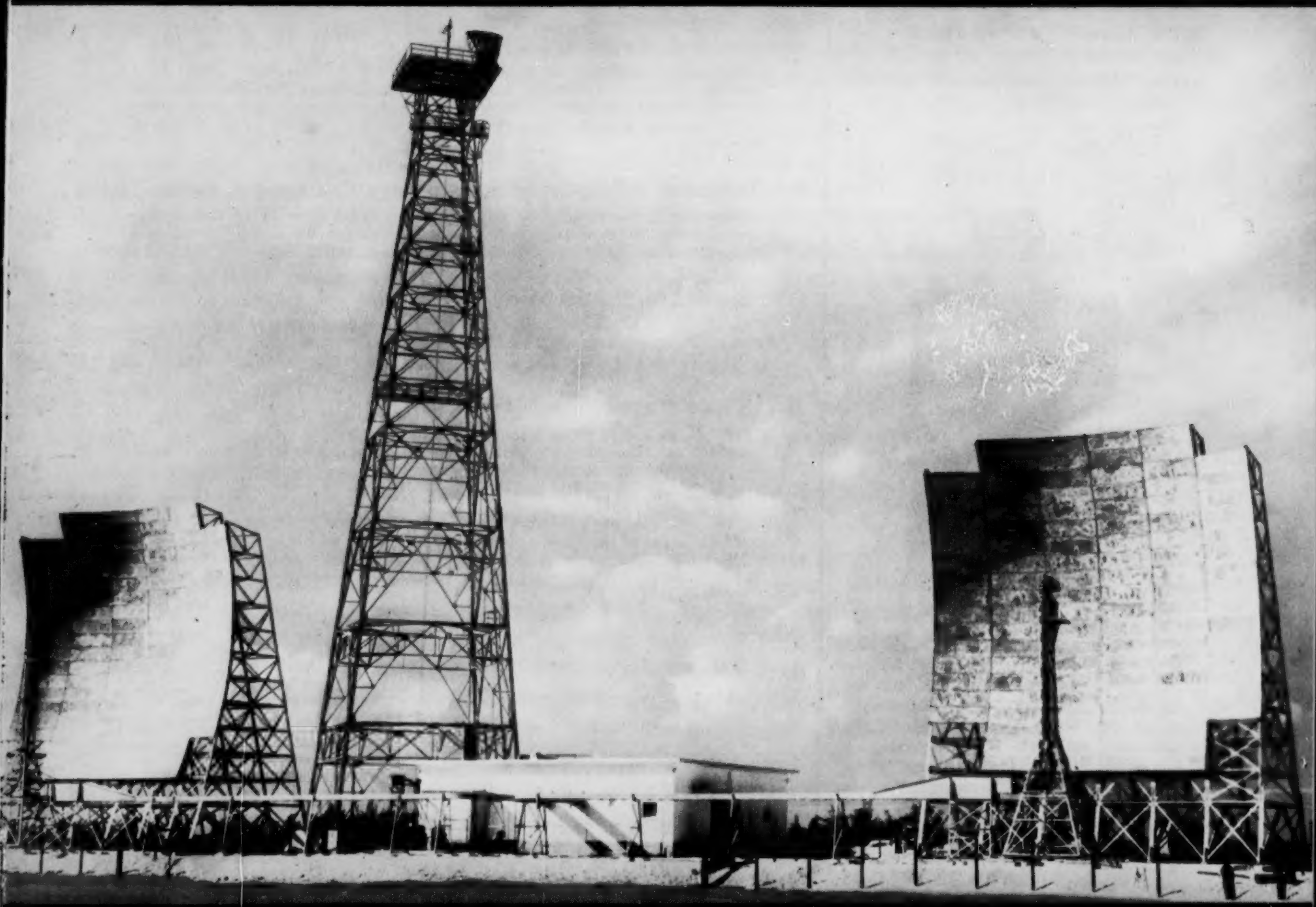
THE MAGAZINE OF

Standards



• • • new definitions reflect changing technology — page 8

JANUARY 1958

In Two Parts—Part 1

THE MAGAZINE OF

Standards

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ASA

Our Cover

Photo courtesy Bell Telephone Laboratories.

Tropospheric scatter radio installation at Florida City, Florida, for telephone and television transmission, a joint undertaking of Long Lines Department, AT&T, and Radio Corporation of Cuba, subsidiary of IT&T. Large antennas are scatter antennas. Ordinary microwave antenna on tower connects scatter system with U.S. microwave network. Reflectors beam signals toward receiver located beyond curvature of earth (see page 10).

ASA

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FEATURES **Part 1**

NEWS

DEPARTMENTS

.... *marginal notes*

Welcome to 1958—

As a running start for standards in 1958, an up-to-date list of American Standards is included with this issue. Mailed as Part 2, the List of American Standards is bound separately in heavy paper cover.

Including 465 new and revised standards since the last edition, the booklet lists 1723 American Standards. These are the product of work done by widely representative committees of experts in many fields and by societies and associations whose nationally acceptable standards have been given recognition as American Standards. They include building and construction, electrical engineering, materials, mechanical engineering, mining, petroleum and chemicals, photography, safety, gas appliances, acoustics, textiles, vibration and shock, and a miscellany of others. An index to titles offers a useful guide to help locate individual standards.

Included for the first time is a list of the international recommendations published by the International Organization for Standardization and the International Electrotechnical Commission.

• Have you ever wondered about the American Standards Association —what it is and how it functions? Starting with this issue, a new monthly column, DINNSA, by Cyril Ainsworth (see page 31) will answer some of these questions.

• T. E. Veltfort, new chairman of ASA's Standards Council, says: "Now, and perhaps even more so in the future, American Standards represent a vital means of conserving scientific and engineering talent.

"The economic function of standardization is as clear cut in this present challenge as at any other time—to continue to provide the basis of mass production, distribution, and consumption. Work must get underway in the new fields as soon as possible to develop more standards in the national interest, suitable for approval as American Standards."

• **Index to Volume 28** will be Part 2 of February issue.

This Month's Standards Personality

WILLIAM T. GUNN, director of the Division of Refining, American Petroleum Institute, dislikes being called a "standards man." He would rather be known as a "man of standards."

"A true standard," he says, "is not a hymn in praise of the lowest common denominator. It is a formula for expressing the ideal—or a hopeful approach to the ideal—from among a group of alternative methods or materials."

He should know whereof he speaks. Besides administering a program of standardization of refinery equipment within the API's Division of Refining, Mr Gunn is secretary of ASTM Committee D-2 on Petroleum Products and Lubricants; assistant secretary of ASA Sectional Committee Z11, Petroleum Products and Lubricants; and secretary of ISO/TC 28, Petroleum Products. For ten years prior to the discontinuance on January 1, 1957, of the API-ASME Code for the Design, Construction, Inspection, and Repair of Unfired Pressure Vessels for Petroleum Liquids and Gases, he served as secretary of the joint API-ASME Committee on Unfired Pressure Vessels.

"Some people," he says, "regard standardization as an attempt to reduce society to a gray, pulp-like mass. Nothing could be further from the truth."

At the suggestion of conformance, Mr Gunn's eyes shoot sparks and his voice descends to a growl. He was once a cowboy, galloping his pony across the Texas prairies, and his grandfather was an early settler in Texas.

"Standardization," he will tell you, taking slow, sure aim (at you) with his trusty—if imaginary—Colt, "is a fundamental law of nature. Men are born with two legs—not three or four. Language itself is a standardized product. The same holds true for music. We would still be croaking like so many frogs in a bog had it not been for the octave."

For Mr Gunn, standards are living things, not a back room of dead files. "I am intolerant," he says, "of anyone who embraces standardization for standardization's sake. Standards can be useful tools, and like other tools must be kept in repair. When no longer serviceable they should be treated the same as any other junk.

"I believe in free standards developed by free institutions in a free society. Standards enacted into law or regulations are in the main reprehensible, and usually are legalized for use in fields that, in my philosophy, lie outside the proper areas of government."

Mr Gunn is a graduate of the University of Texas, B.A., 1926. He worked for 18 years as a chemist for the Texas Company before joining API as director of refining in 1948. At the API he presides over a complex pattern of projects, some involving relationships between such societies as ASTM, ASME, MSS, TAPPI, DEMA, NEMA, SAE, and many others.

"Those initials," he says, "remind me of the man who bought a can of alphabet soup. He was soon back at the grocer's, complaining bitterly. There were no letters from 'U' through 'Z.' There is your 'standards man.' The 'man of standards' was the one who created the soup in the first place—and did it to a 'T'."

by **F. A. Upper** *Chairman, Standardization Committee, Grinding Wheel Institute*

The user is assured proper fit of replacement grinding wheels to original equipment when he follows B5.35-1957.

Besly, Chicago

ONE OF THE most needed areas of standardization is between machine tool elements and abrasive tools that fit the machines.

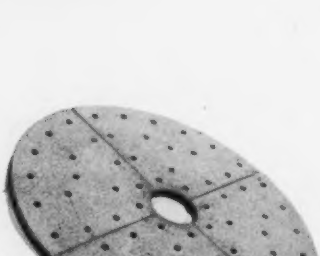
The new standard recently approved as American Standard B5.35-1957 is the first American Standard to incorporate specifications that apply to both machine tool elements and abrasive products. The new standard is the result of a co-operative effort by machine tool builders, abrasive manufacturers, and the users of both to provide a voluntary standard for the benefit of all concerned. The need for the new standard has long been recognized, particularly to assist the users in procurement of the replaceable abrasives for their machine tools.

Lacking a standard, mounts for abrasive discs and plate mounted wheels naturally differed in respect to anchorage layouts with various machine builders. In many cases, this necessitated the redrilling of machine mounts by the user to provide for interchangeability of abrasives on machines. Otherwise, it was necessary to carry duplicate supplies for each make of machine. Often, as many as three layouts were required on the same mount.

The new standard provides the specifications whereby nonstandard machine mounts may be altered with confidence that they will conform to the one future standard.

As explained in the Foreword, the standard covers the mounting specifications for abrasive discs and plate mounted wheels which heretofore have been referred to by many names and designations. Among these designations have been terms such as disc wheels, steel back abrasive discs, plate mounted wheels, nut inserted wheels. The characteristic that makes this class of wheel different from the conventional grinding wheel is the method by which the wheels are mounted on the grinding machines. The principal difference is that the

Gardner Machine Co.



53-in. segimental disc. Standard hole 13/32 in. diameter; spacings specified in standard.

power is imparted to the grinding wheel through either inserted nuts, inserted washers, projecting studs anchored on one side of the abrasive wheel, or a mounting plate of steel or other rigid material cemented on one side of the wheel.

The steel disc wheels (machine face plates) on which these abrasive discs and plate mounted wheels are mounted must be drilled with holes to match the location and pattern of the holes in the mounting plates or other anchoring devices in the mounting side of the abrasive wheels.

Standards for location and size of bolt holes in steel disc wheels (machine face plates) and the mounting side of abrasive discs and plate mounted wheels are the principal purpose of the work.

The various mounting specifications are classified in three systems according to the abrasive elements for which the mounts are designed. These are defined as follows:

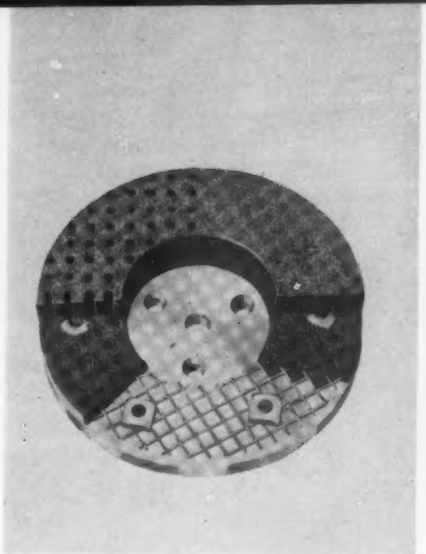
Abrasive Discs are bonded abrasive discs which may be of the inserted nut type, inserted washer type, projecting stud type, and tapped mounting plate type. On the mounting side of the abrasive disc the inserted nuts, inserted washers, projecting studs, and tapped plate holes are located in a pattern to match the spacing of corresponding holes in the steel disc wheels (machine face plates) of grinding machines. Grinding is done on the exposed flat side.

Cylinder Type Abrasive Discs are those similar in shape to Type 2 abrasive wheels. They may be of the inserted nut type, the tapped mounting plate type, or the projecting stud type, the tapped holes, inserted nuts, or projecting studs being located in a pattern to match the spacing of corresponding holes in the adapter.

Plate Mounted Wheels are bonded abrasive wheels that have mounting plates of steel or other rigid material permanently attached to one side of the wheel. Mounting holes are located in a pattern to match the spacing of corresponding holes in the steel disc wheels (machine face plates) and are located within the inside diameter of the abrasive section. Grinding is done on the exposed flat side.

The first consideration in procurement is to designate, in terms as simple as possible, the article to be purchased. The acceptance of a standardized nomenclature should greatly assist all concerned.

American Standard Machine Mounting Specifications for Abrasive Discs and Plate Mounted Wheels, B5.35-1957, was prepared by ASA Sectional Committee B5 on Small Tools and Machine Tool Elements. The committee is sponsored by the Metal Cutting Tool Institute, the Society of Automotive Engineers, the National Machine Tool Builders' Association, the American Society of Tool Engineers and the American Society of Mechanical Engineers. Published by ASME, the standard can be obtained from the publisher or from the American Standards Association at $1.50 per copy.



Gardner Machine Co.

Cut-away view of inserted nut disc, described in section 1 (a), B5.35-1957. Standard specifies machine mounting for discs 10 to 72 in. diameter.

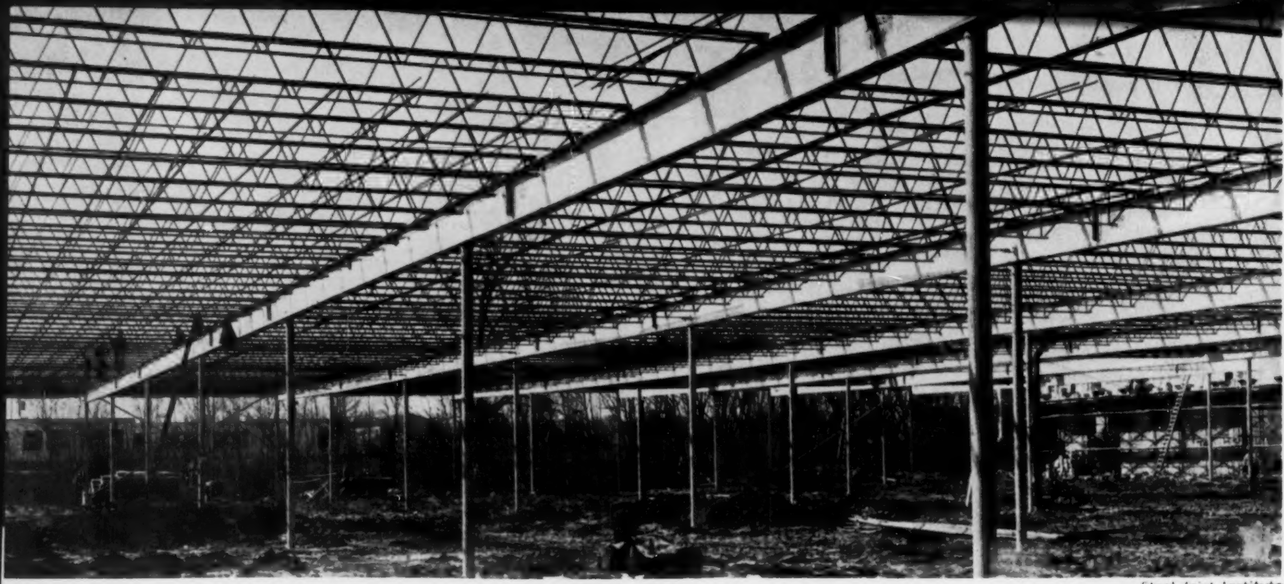
Disc grinding is recognized as one of the most rapid and economical methods of generating flat surfaces. Metal parts such as piston rings, bearing races, ends of coil springs, and a wide variety of other parts are finished to very close tolerances in a continuous operation. Parallel surfaces are generated simultaneously with double disc grinders at production rates unattainable by any other method. Accuracies within tens of thousandths are not uncommon. The operation may be performed dry or with a coolant. Wet grinding offers the advantages of cooler cut and better finishes. Finishes as good as 10 microinches or less may be obtained on a production basis.

Cylinder type abrasive discs are normally used on vertical spindle machines with the work passing under the wheel on a rotary or reciprocating table. Such an operation is most suitable for surface grinding a small number of parts where the volume is not sufficiently large to warrant a high degree of automation.

Many other materials, such as brick, tile, brake lining, and plastics, lend themselves to this type of surfacing with the same effectiveness as obtained on metal parts.

Single point tools and drills are usually reconditioned on plate mounted wheels, the chief advantages being that more usable abrasive is available than with type 6 cup wheels previously used for these operations. Other uses include miscellaneous surfacing operations where the ease of mounting of this wheel type is preferred to abrasive disc wheels.

In view of the increasingly urgent need for standardization between machine tool elements and the abrasive tools that fit the machines, this first American Standard covering machine mounts, abrasive discs, and plate mounted wheels is a forward step which should receive general acceptance by industry.



Steel Joist Institute

How Standards Assure Safe Construction

by **C. H. Luedeman**
Managing Director, Steel Joist Institute

SIDEWALK superintendents who watch construction jobs through knotholes in wood fences must have noticed during the past 25 to 30 years the increasing use of open web steel joists. This lightweight type of construction for floors and roofs has been growing in popularity since World War II. One of the developments that has contributed to speedier, lighter, and more versatile construction, it is now widely used in the building industry for many types of structures and occupancies.

One of the factors in its successful application has been the work done by the Steel Joist Institute to develop specifications for materials, sizes, methods of construction, fire resistance, and tests to assure that the products of its member producers measure up to standard performance and quality requirements. The Institute's specifications are recognized as acceptable by all groups concerned and have been approved by the American Standards Association. The most recent edition of the American Standard Specifications for Open Web Steel Joists, Shortspan Series, A87.1-1957,[1] represents the latest revision of the Institute's specifications.

The American Standard includes not only specifications for materials and construction, but also provides a standard loading table that shows in detail the allowable safe loads in pounds per linear foot of open web standard and nailer steel joists.

The first open web steel joist made its appearance in the market in 1923. During the next five years, various types of joists were developed and perfected. Some were made with structural shapes such as angles and special hot rolled sections; others were made by expanding a hot rolled shape. During this period each manufacturer had his own design and fabrication standards. As a consequence, there was a considerable difference in the depth and load-carrying capacities of the joists offered by the industry for the same span. Realizing that the continuance of such conditions would be detrimental to the industry and to consumer alike, the members of the industry took steps to formulate a specification prescribing methods for the design, fabrication, and installation of open web steel joists comprising the Shortspan Series. These specifications have been given recognition by the Southern Standard Building Code of the Southern Building Code Congress, the Basic Code of the Building Officials Conference of America, the Uniform Code of the International Conference of Building Officials, and the National Code of the National Board of Fire Underwriters.

The first edition approved by the American Standards Association was in 1947. This has now been brought up to date in the revised 1957 edition.

The open web steel joists covered in the American Standard A87.1-1957 are completely standardized as to lengths, depths, and carrying capacities. They are made in standard depths of 8, 10, 12, 14, 16, 18, and 20 inches and in lengths to accommodate spans up to 40 feet. Since each joist is a complete, stable, and independent unit with load-carrying capacities for various spans as prescribed by the standard loading table, they may, through the selection of the appropriate joist designation and spacing, be arranged so that they

[1] Copies of American Standard A87.1-1957 can be obtained from ASA at 75 cents.

provide for a wide range of loading conditions.

The specifications include requirements for the materials, the connections, methods of design and stresses, the permissible span of the steel joists, and instructions for their erection. They also cover specifications for the floor decks and floor slabs over the steel joists and for roof decks when used over the joists. A performance test procedure prescribing the method for load-testing open web shortspan steel joist construction also is included in the specifications.

As a result of burn-out tests made at the National Bureau of Standards, it is possible to express with a reasonable degree of accuracy the severity of fire hazard represented by a given weight of combustible material in terms of the equivalent fire exposure according to standard fire test specifications. These tests revealed that for buildings such as apartments, hotels, hospitals, offices, residences, and similar structures, adequate protection against fire hazard is provided when the construction will safely undergo a standard one and one-half hour fire test.

Tests prove that floor and roof construction composed of open web steel joists, a 2-inch concrete slab over the joists, and a metal lath and ¾-inch plaster ceiling properly attached directly to the underside of the steel joists will provide a fire resistance of one and one-half hours as determined by the standard fire test. This combination of materials makes available adequate fire-resistant construction at a minimum cost.

The specification also prescribes additional combinations of joists, top slab, and ceiling materials that will provide fire resistance to meet differing requirements ranging from three-quarter hour fire resistance to four hour fire resistance.

The standard loading table, also part of the American Standard, offers an easy reference guide to the total safe uniformly-distributed load-carrying capacities of open web steel joists and nailer joists.

The table lists the depth in inches, approximate weight in pounds per linear foot, the resisting moment in inch kips,[2] the maximum end reaction in kips for each type of joist, and the span in feet. In using this table the weight of dead loads must in all cases be deducted to determine the live load-carrying capacities of the joists. A load table for standard extended ends also is included. The total allowable uniform load in pounds per linear foot of extended end is given for four types of standard extended ends, in relation to the number of feet of unsupported length of the extended end.

The Steel Joist Institute uses these specifications as requirements for the company members of the Institute to follow. The Institute carries on an inspection and testing program to determine whether the products of its members conform to the specifications. Inspection visits are unscheduled. Shop fabrication is inspected and physical tests of the joists being produced are carried out by an independent and nationally recognized testing laboratory. The inspector is privileged to select joists at random from the production lines. Measurements are made for dimensional tolerances, panel spacing, eccentricity of joints, and alignment of bearing members. And the component parts of the joists are measured to determine compliance with the approved design. Tests to destruction on several joists determine the strength of the welds, while tension tests of the individual component parts determine the quality of the steel.

The findings of the inspector are forwarded to the Institute's consulting engineer who compares the results of the inspection with the approved designs. If the report discloses a departure from the approved design, the manufacturer is obliged to correct discrepancies promptly, after which a re-examination is made to make certain that fabrication is then in accordance with the requirements of the Institute's Joist Quality Verification Program.

One of the interesting operations conducted under the provisions of this quality control program are the tests to determine the strength of welds. The American Standard specifications provide that all joints and connections shall be capable of withstanding a load at least three times the design load. A special procedure has been designed by the Institute to test the strength of the weld to destruction, to determine whether it meets this requirement.

The work on testing and quality control carried out by the Institute and its members is in line with the Institute's purpose of "placing the industry on a sound engineering basis." Objectives of the Institute are to establish methods of design and construction for open web steel joists, to provide test and research data for public dissemination, to assist in the development of proper building code regulations, and to publish information relative to the proper use of steel joists in the interest of safety and the public welfare.

Because of its outstanding position in the field and its leadership in developing the specifications and test methods, the American Standards Association has assigned to the Steel Joist Institute responsibility for future revisions of the American Standard on Open Web Steel Joists, Shortspan Series, A87.1-1957, as Proprietary Sponsor.

Photo by Eric J. Baker

Here, gypsum planks are being applied over open web steel joists.

[2] As used in Great Britain and the USA, "kips" is a combination of "kilo" and "pounds" meaning 1,000 pounds.

New Definitions Reflect Changing Technology

by Chester L. Dawes

Professor Dawes, School of Engineering, Harvard University, Cambridge, Mass., has been chairman of ASA Sectional Committee C42, Definitions of Electrical Terms, since 1946. The committee is sponsored by the American Institute of Electrical Engineers.

Photo Hughes Aircraft Co.

Standard induction motor (see C42.35, Generation, Transmission, Distribution, for definition). This new model supplies power for testing Hughes' airborne fire control system.

THE American Standards Association approved the initiation of a project to prepare standard definitions of electrical terms in 1928 on the recommendation of the Standards Committee of the American Institute of Electrical Engineers. The scope of the work was to cover:

Definitions of technical terms used in electrical engineering, including correlation of definitions and terms in existing standards.

Under this authorization, Sectional Committee C42 was organized under the sponsorship of the AIEE. On August 12, 1941, the first edition of the American Standard Definitions of Electrical Terms was approved by the American Standards Association.

Almost as soon as the 1941 edition had been published, it became apparent that work on a new edition would soon be necessary, since new terms were already accumulating rapidly. However, it was necessary to defer this work until after World War II. During the war so many new developments in electrical engineering had occurred that revision became almost mandatory.

The sectional committee was reorganized in 1946. The organization and mode of procedure of the sectional committee has already been described.[1, 2]

Briefly, the chief purpose of ASA is to provide systematic means by which organizations concerned with a standard may cooperate "to the end that duplication of work and the promulgation of conflicting standards may be avoided." Hence, in organizing a sectional committee all the "organizations concerned" should have representation. Since electrical applications and methods enter nearly every field of engineering and science, the C42 Sectional Committee must necessarily have a wide representation. This includes not only professional, engineering, and scientific organizations but also such organizations as the Mathematical Society of America, the American Society for Engineering Education, the National Bureau of Standards, the Association of American Railroads, National Fire Protection Association, the armed forces, including the Army, Navy, and Air Force, and manufacturers' organizations. The Canadian Standards Association is also represented. In the committee preparing the present edition, there are 33 such organizations, as compared with 31 in the committee that developed the 1941 edition. The sectional committee, which includes the representatives of these organizations, now numbers 72 members, as compared with 45 in the 1941 edition.

The work of the sectional committee is conducted by 18 subcommittees, the chairman of each being appointed by the sectional committee. These chairmen are selected, not only on the basis that each is a recognized authority in his particular field, but also for their

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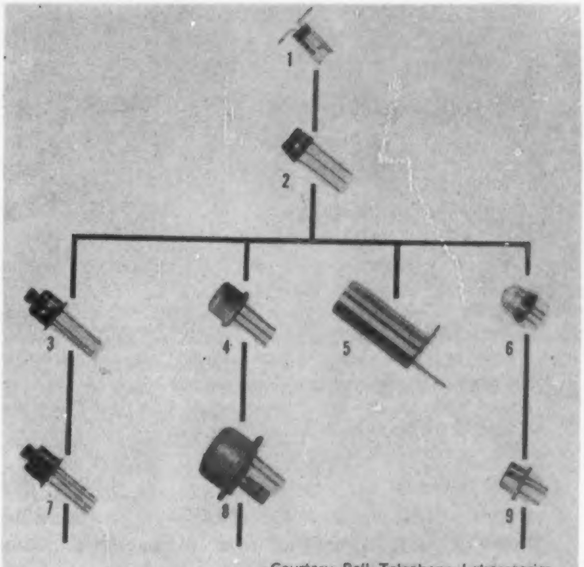
[1] "Revision of American Standard Definitions of Electrical Terms," Chester L. Dawes, *Standardization*, May 1952, page 136.

[2] "Revision Status of American Standard Definitions of Electrical Terms," C. L. Dawes, *Electrical Engineering*, May 1952, page 416.

TRANSISTORS—*first family of electronics*

For transistor definitions, see C42.70

1. *1948—Early "point contact" transistor.*
2. *1950—Early "junction" transistor.*
3. *"Grown junction"; used to amplify received speech in special telephones.*
4. *"Alloy junction"; used in first completely transistorized carrier telephone system.*
5. *Phototransistor; provides electric "eye" for direct distance dialing.*
6. *Experimental "diffused base" transistor.*
7. *"Grown junction," tetrode type; high frequency amplifier.*
8. *"Alloy junction"; low frequency power amplifier.*
9. *"Diffused base"; high frequency broadband amplifier.*



Courtesy Bell Telephone Laboratories

experience in standardization work. Each chairman appoints the members of his own subcommittee, with the objective of securing as wide representation in the field as is possible. The present subcommittee personnel is 179, as compared with 120 in the 1941 edition.

As in the 1941 edition, the field of electrical engineering is divided into major Groups and subsidiary sections, which are denoted respectively by the first two parts of the three-part number. For example, the definition for the term "rotor" is numbered 10.11.435. This shows that the definition is in American Standard C42.10-1957, covering Group 10, Rotating Machinery; that it is in Section 11, Machine Parts (other than Windings) in Group 10; and that 435 is the specific number of the term. The alphabetical index refers to the term by number and also by page.

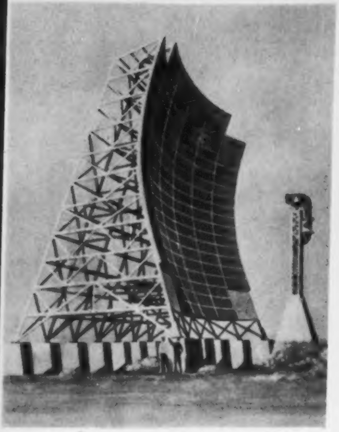
In this edition, as in the 1941 edition, the primary aim is to express for each term the meaning which is generally associated with it in electrical engineering work in this country. Where more than one term is used for the same concept, the preferred term is given in bold-face type, the synonyms are given in light-face type, and deprecated terms are indicated by a footnote. When a term occurs in more than one Group or section, and the definition is identical, the definition is given but once and elsewhere the term is listed with cross-reference. When one term has a different meaning in different fields, the field to which the definition applies is indicated by parenthesis.

It was the original intention to issue this second edition as a single volume, as with the 1941 edition, but the rapid changes and the highly accelerated development of new terms required greater flexibility, so that this edition is issued with each Group as an individual pamphlet with its own index. When all the Groups are issued there will be a general index, and a suitable binder will be made available to contain the individual pamphlets.

The number of the standard, the Group title, the subcommittee number, and the subcommittee chairman are given below. The last two digits of the number of the standard give the Group number.

Standard	*Group Title*	*Subcommittee*	*Chairman*
C42.05	General (Fundamental and Derived Terms)	1	J. D. Tebo
C42.10	Rotating Machinery	2	E. B. Paxton
C42.15	Transformers, Regulators, Reactors, and Rectifiers	3	J. E. Clem
C42.20	Switchgear	4	H. J. Lingal
C42.25	Industrial Control Equipment	5	G. W. Heumann
C42.30	Instruments, Meters, and Meter Testing	6	F. B. Silsbee
C42.35	Generation, Transmission and Distribution	7	A. A. Johnson
C42.40	Transportation (General)	8	H. C. Griffith
C42.41	Transportation (Air)	8	K. R. Smythe
C42.42	Transportation (Land)	8	H. C. Griffith
C42.43	Transportation (Marine)	8	H. C. Griffith
C42.45	Electromechanical Applications	9	S. Beckwith
C42.50	Electric Welding and Cutting	10	R. W. Clark
C42.55	Illuminating Engineering	11	H. Reinhardt
C42.60	Electrochemistry and Electrometallurgy	12	G. W. Vinal
C42.65	Communication	13	E. I. Green
C42.70	Electron Devices	14	S. B. Ingram
C42.75	Radiology	15	M. D. Schulz
C42.80	Electrobiology including Electrotherapeutics	16	F. J. Jung
C42.85	Mining	17	E. J. Gleim
C42.95	Miscellaneous	18	R. L. Lloyd

Probably few realize the detailed and necessarily prolonged procedure that is necessary to insure that each definition meets, as nearly as possible, general acceptance by the many individuals and organizations



Courtesy Bell Telephone Laboratories

Tropospheric scatter propagation *(see C42.65) is used to beam phone messages and television between USA and Cuba. Reflector (left) sends radio waves beyond earth's curvature.*

who are interested in electrical engineering. The definitions of each Group originate in the subcommittee whose membership, as has been pointed out, represents widely differing interests in the field. These subcommittee members not only study the former C42 definitions, but also consider the definitions appearing in related standards of the American Institute of Electrical Engineers and in American Standards. In addition, the chairmen of these standards committees are not only requested to submit any new definitions which they may wish included, but they are also invited to sit in with the subcommittee while such definitions are under consideration. To expand further the scope of the work, interested individuals and organizations too are invited to submit any definitions which they believe should be included.

It requires many meetings, much correspondence, and much time before a subcommittee can reach agreement on the definitions which have come from the several different sources. These definitions, after receiving approval by the subcommittee, are then circulated for suggestions and changes as a Preliminary Draft to the members of the sectional committee and to other persons and organizations who may have an interest in them. The members of the sectional committee who represent or are connected with organizations usually circulate their copy among those persons who are skilled in the particular field.

In order to expedite the final draft which comes later, everyone is *urged* to make all the suggestions and changes which he contemplates in this Preliminary Draft. The suggestions and changes are referred to the subcommittee and are taken into consideration in the preparation of the final draft of the Group.

This final draft is then sent to the members of the sectional committee for final approval. However, although an overwhelming majority may vote approval, it is almost inevitable that with 72 sectional committee members, together with those whom they consult, there will be some negative votes, or disapproval of individual terms. These objections must be met, either by a revision which is satisfactory to the objectors as well as to the committee, or by convincing the committee that the objections are not valid. Any revision or changes that are made, unless strictly editorial, must be approved by the 72 members of the sectional committee. This procedure illustrates, I believe, the care which is taken by the American Standards Association to insure that each definition meets as nearly universal approval as possible, and further it explains the length of time which is required to complete a standard of definitions.

After the sectional committee has voted final approval of a Group, it so reports to the Standards Committee of the sponsor, the American Institute of Electrical Engineers. The Standards Committee and the sponsor in turn recommend the approval of the Group as an American Standard to the Electrical Standards Board of ASA, submitting the record of the voting in the sectional committee. When the Electrical Standards Board and the Board of Review of ASA have voted their approval, the Group then becomes an American Standard.

After over ten years of preparation, several of the Groups, through the foregoing procedure, have already become American Standards and have been issued in pamphlet form. The remaining Groups are rapidly passing through the editing and printing processes and will soon be available.

Because of the many new developments since the 1941 edition, many changes must necessarily have occurred in the different Groups of this edition. Briefly, the more important ones are as follows:

Group 05 – General (Fundamental and Derived) Terms: These terms are basic to those terms defined in the subsequent Groups or sections. In Group 05, the definitions begin with the general mathematical and physical terms—these being the scientific terms upon which engineering as applied science is based–followed by the more specific fundamental terms applicable to the many branches of electrical engineering.

Attempts have been made to attain simplicity in the definitions by defining the terms in "word pictures" wherever possible, even in defining a mathematical term, supplementing the worded definition with a mathematical formula where this applies. It is hoped that the combination will satisfy both the theoretical and the more practical-minded engineer.

Many electrical engineering devices, such as transformers, find applications to power transmission, communications, control equipment, and many other specific uses. In Group 05, the fundamental definition is given; the particular *kind* of transformer is then defined in the pertinent group under consideration. Where a term is applicable to several fields, therefore, it has been thought most expedient to include it in the General 05 section.

Because of the recent widespread interest in the data processing and computing devices field, a new section of Group 05 terms–05.56 Computers–has been introduced. These terms include both fundamental definitions and applied definitions in this particular field of engineering. Because of their specific field of interest, it is believed more appropriate to locate these definitions in one place than attempt to divide the terms into the many branches as represented by the several groups of the standard.

The magnitude of the work in revising the Group 05 glossary is represented by the increase in number of sections of the 05 terms–14 as compared to 11 in the 1941 edition–comprising over 900 terms in the new group, and less than 500 in the old. Even this increase should not be considered final, as new terms will continue to be introduced as expanding technical knowledge will demand. This revision therefore cannot be considered final but must be a continuing program.

Group 10–Rotating Machinery: The revised definitions for this Group include 323 terms as compared with 184 in the 1941 edition. The number of terms would be greater had it been considered advisable to include every possible term. Obviously, some of the other and newer branches of the electrical art have been developing faster, necessitating a greater increase in the number of terms for them than for rotating machines.

Nevertheless, it is found that 25 new terms for types of machines and 8 qualifying terms pertaining to excitation and types of windings have been added, indicative of growth even in this old, established field.

A new section on "Position Transmission Systems and Machines," comprising 8 terms for synchro systems, transmitters, and receivers, has been added.

The section on machine parts has been augmented threefold. These definitions serve a useful purpose in that they help users and manufacturers to avoid misunderstanding in ordering and furnishing replacement parts.

A separate section devoted to windings has been provided and 10 new terms added.

Terms pertaining to enclosure, protection, and ventilation have not increased greatly in number but the names used and the definitions have been changed materially in keeping with changing industry usage.

The terms for Synchronous Machine Quantities received thoroughgoing consideration by a working group formed for this purpose. This resulted in a few fundamental changes, refinements in existing terms, and the addition of 9 new terms.

A section is now devoted exclusively to excitation terms and 7 terms have been added.

Minor changes in torque terms have been made, and there are 14 new definitions in the "Not Otherwise Classified Section."

Group 15–Transformers, Regulators, Reactors, and Rectifiers: The total number of terms is 175 as compared with 77 in the 1941 edition. The increase in number by sections is as follows: 20-Transformers, from 54 to 63; 30-Regulators, from 2 to 5; 40-Reactors, from 7 to 13; 50- Rectifiers, from 15 to 94. (The single "General" term, Section 10, in the 1941 edition is omitted.) Many of the new definitions in Section 20 relate to the different types of rating, which were not given in the 1941 edition.

By far the greatest increase is in Section 50-Rectifiers. The new terms relate to different types of rectifying and inverting devices, to electrolytic and metallic rectifiers, to accessories, to rectifier parameters, loads, and operating characteristics, and to the several types of rectifier circuits.

Group 20–Switchgear: The total number of terms is 473 as compared with 345 in the 1941 edition. The greatest increase occurs in the General terms, in which there were only 9 terms (excluding cross-reference terms) in the 1941 edition as compared with 72 in this edition. The section on Interrupting Devices in the 1941 edition has been changed to Circuit Breakers in this edition, and the number of terms increased from 69 to 92. The number of Relay terms has increased from 82 to 95; Lightning Arrester terms from 5 to 26; Regulator terms from 6 to 12; Network Protector terms from 1 to 7; Switchgear Assemblies terms from 65 to 84.

Group 25 – Industrial Control Equipment: The title of Group 25 has been changed from "Control Equipment" to "Industrial Control Equipment" in order to state more clearly the area to be covered. The word "Control" is now used very often in connection with power systems, military equipment, communication systems, domestic appliances, business management, etc. Hence, it was thought advisable to use the term "industrial control" which is well understood as covering essentially control of power utilization equipment as used in industry.

The 1941 edition of C42 contained 54 definitions in Group 25. During the past decade, the industrial control industry has experienced a very healthy growth and magnetic and electronic controls have been introduced to many new applications. Thus, many more terms have found widespread use and the new edition contains 215 definitions of terms.

It was found desirable to rearrange the headings under which the terms are listed, and they are now grouped as follows: General; Parts and Enclosures; Switches, Relays, Contactors; Controllers and Starters; Electric Drives; Servomechanisms and Regulators; Electronic Control; Qualifying Terms; Duty, Service, and Rating; Protection. New material has been added in the section dealing with electric drives and electronic control. A section on servomechanisms and regulators has been introduced as a heading, but no terms have been listed. These subjects are being worked on by other ASA sectional committees, particularly C85 on Terminology in the Field of Automatic Controls. In order to avoid possible conflicts, it was decided to await the completion of the C85 work, and it is expected that terms dealing with servomechanisms and regulators will be introduced in the next revision of C42.

Group 30–Instruments, Meters, and Meter Testing: In 1941 Group 30 contained 152 definitions; in the 1957 edition this has been more than doubled and counts up to 312. The increase has come partly from the inclusion of new sections, one on terms used in analyses of measurement and the other on terms used in telemetering. The terms have been rearranged to some extent so that now terms referring to each of the categories "Instrument" and "Meter" have sections dealing with "Characteristics," "Basic Types," and "Parts." Also, the old list of specific instruments has been split up by listing them in separate sections which contain, respectively, definitions of instruments used in communications, in magnetic measurements, in bridge circuit nomenclature, and in temperature measurements.

Group 35–Generation, Transmission, and Distribution: The total number of terms is 431 as compared with 356 in the 1941 edition. The greatest increase occurred in the sections on Generation, in which the increase is from 41 to 58; on Details of Construction (Overhead) in which the increase is from 46 to 64; on Wires and Cables, in which the increase is from 47 to 72; and on Low Frequency and Surge Testing, in which the increase is from 24 to 37. A new Section 17, Grounding Devices, containing 16 new terms, has been added.

Group 40–Transportation (General): The total number of terms is 4 as compared with 28 in the 1941 edition. However, most of the General Terms in the 1941 edition have been transferred to Group 42, particularly to Sections 01 and 37, General and Vehicle Control Equipment, respectively.

Group 41 – Transportation – Air: This Group has been greatly expanded, there now being 57 terms as compared with only 9 in the 1941 edition. There are now four sections: 01, Electrical Equipment; 16, Wiring and Associated Equipment; 26, Electronic Equipment; 36, Instruments. The new terms reflect many of the later developments in aeronautics, there being definitions, for example, of military applications and electronic-approach landings.

Group 42 – Transportation – Land: The total number of terms is 384 as compared with 286 in the 1941 edition. The largest increases occur in Sections 16, Vehicles; 46, Railway Signals and Interlocking; 56, Car Retarders. In Section 16, definitions of many diverse types of electric locomotive, cars, trains, and buses have been added. Similarly, in Sections 46 and 56 many new terms relating to the latest developments in railway signals and in car retarding practice have been added. There are two new sections: 36, Vehicle Rotating Equipment; and 37, Vehicle Control Equipment. The former Section 22, Mine Vehicles, is omitted in this Group and the terms transferred to the new Group 85, Mining.

Group 43–Transportation–Marine: This is an entirely new Group containing 73 new definitions. There are seven sections which are as follows: 01, General; 06, Ship's Service System; 11, Emergency System; 16, Interior Communication; 21, Aids to Navigation; 26, Electric Propulsion; 31, Associated Marine Terms.

Group 45–Electromechanical Applications: In the 1941 edition Group 45 had two sections, 10–Elevators; and 11–Cranes, Derricks and Hoists. The section on elevators was taken word for word from the 1937 American Standard Safety Code for Elevators, Dumbwaiters and Escalators.

The revised Group 45 definitions followed the same procedure, since a new elevator code was currently being prepared by a group more closely associated with elevators, and it did not seem desirable to have any discrepancies between American Standards.

In view of the above background, and in view of the fact that all the comments received involved details of definitions taken from the elevator code, it has not seemed possible to take any further action.

Group 50–Electric Welding and Cutting: The total number of terms is now 100 as compared with 77 in the 1941 edition. Two new sections have been added–Brazing, and Arc and Oxygen Cutting.

Group 55–Illuminating Engineering: The total number of terms is 151 as compared with 179 in the 1941 edition. A section on Color has been added, whereas the section on Aeronautic Lighting is omitted.

The material on illuminating engineering in the 1941 edition was identical with American Standard Z7.1-1942, which had been prepared by the Committee on Nomenclature and Photometric Standards of the Illuminating Engineering Society.

This IES Committee has been working on a revision of American Standard Z7, but the entire revision has not yet been completed. The material being published as Group 55 of C42 at this time incorporates all of the revisions that have been completed and approved to date. The remaining material for which the revisions have not yet been completed or approved has been worked out by the C42 subcommittee to represent the present status of terminology in this field as accurately as is practicable. This includes the new section on color. One of the more significant changes is in "Photometric Brightness." This was formerly known simply as "Brightness," but in view of the wide variance in the use of this term in both the popular and technical sense, it has been changed to "Photometric Brightness" for the sake of a clearer identification. An alternate name "Luminance" has already been approved by the American Standards Association Sectional Committee Z58, sponsored by the Colorimetry Committee of the Optical Society of America. The definition has also been revised in recognition of the need for a more generalized concept.

Group 60–Electrochemistry and Electrometallurgy: The total number of terms is 381 as compared with 398 in the 1941 edition. However, in the 1941 edition there was a section on Rectifiers. The rectifier definitions have been transferred to Group 15.

Group 65–Communication: This is a revision and enlargement of the definitions of communication terms which appeared in Group 65 of the 1941 edition. This new glossary includes a total of 1780 communication definitions as compared with 528 in the 1941 edition. In the 1941 edition, Wire Communication and Radio Communication were prepared by two subcommittees. In this edition both categories were prepared by a single subcommittee.

Group 70–Electron Devices: The total number of terms is 344 as compared with 95 in the 1941 edition. The title of the Group has been changed from "Electronics" to "Electron Devices." The term "electronics," in accordance with modern usage has been defined to include not only electron devices but also their utilization. To avoid conflict with other Groups which cover fields of application in which electron devices are utilized and which, therefore, form part of the broad field of electronics, the scope of Group 70 has been limited to the electron devices themselves. The term "electron device" has been defined also, in accordance with present-day usage, broadly enough to cover both electron tubes and semiconductor devices. Because the field is new, and there is not as yet sufficient agreement among committees of AIEE and IRE, few semiconductor devices are defined in this edition.

The field of electron devices is very active and there are many further definitions which have been drafted but could not appropriately be included in this edition, but should be ready for the next one. In this category are certain types of electron tubes, klystrons, traveling wave tubes, and storage tubes.

Group 75–Radiology: Physically, the new Group is changed in that it is divided into several principal sections: 01, General; 06, Instrumentation; 11, Units and Measurements; 16, Applications; 21, Protection; and 26, Radioactivity.

A considerable number of obsolete terms and units are retained or have been added to Sections 01 and 11. This is done because of the fact that these terms do appear in the literature and there is no other convenient repository for such historical information. So, while they may seem redundant, they were added to satisfy this need.

The section on Applications has a strong clinical bias which is perhaps open to question and reflects the interest of the members of the committee. However, at the time the revision was made, clinical applications of radiology were pretty much in the forefront.

The sections on Dosimetry, Radioactivity, and Protection are perhaps already obsolete or at least incomplete. This field is growing rapidly, information and vocabulary of one year often changing and becoming pretty much obsolete and inadequate the year following. For the most current information pertinent to the matter of radiation dosimetry and protection the current revised figures of National Bureau of Standards Handbooks 59, 60, and 62 should be consulted—whatever figures are given in the text probably being no longer valid.

The most important single occurrence since the last edition has been the acceptance of a new unit of radiation measurement. For the first time we now have a unit of dosimetry which truly represents energy absorbed—the "rad," which was accepted at the International Congress of Radiology in Copenhagen in 1953, and is applicable to all types of ionizing radiation, is now the only accepted unit of dose. The roentgen remains as a unit of exposure with the "rem" and the "rep" retaining their usefulness in the field of radiation protection and health physics. NBS Handbook 62 should be consulted in reference to current terminology in dosimetry and measurement.

Group 80—Electrobiology, including Electrotherapeutics: The total number of terms is 100 as compared with 47 in the 1941 edition. In keeping with the many late developments in electrobiology, Section 06, Biology, has been greatly expanded, there now being 56 terms as compared with 7 in the 1941 edition. Many obsolete terms are retained, but deprecated, since they still appear in the literature and their definitions should be available for reference. The definitions of the Group owe much of their value to the fact that so many members of the subcommittee are members of the medical profession.

Group 85—Mining: The first edition of American Standard Definitions of Electrical Terms approved in 1941 contained a group of only seven terms used specifically by the mining industry. Moreover, this group (Group 42, Section 22) was restricted to mine vehicles (locomotives). When the decision was made to revise this volume to include new terms, it was recognized that rapid mechanization of coal mines had brought about the development of so many new types of machines and equipment as to justify setting up a new group that would cover mining activities in addition to transportation.

It is recognized that the draft contains imperfections and does not include some terms that have come into being as methods and machinery progressed. In view of the rapid advances being made in both of these, any attempt to keep the definitions in step with them appeared to be virtually impracticable. Accordingly, it is to be hoped that the user of the present volume will make due allowances for shortcomings in it.

Group 95—Miscellaneous: The total number of terms is 155 as compared with 173 in the 1941 edition. Two sections of the 1941 edition, Thermoelectricity, and Signaling Equipment, are omitted in this edition and the definitions of the different classes of insulation have also been omitted since they were considered as terms more appropriate to a current standard than as more or less permanent definitions.

The chairmen of two subcommittees, Dr M. D. Schulz of Radiology and Dr F. T. Jung of Electrobiology, and many of the members of their subcommittees are not electrical engineers but rather Doctors of Medicine and members of the American Medical Association. The "wide representation" in the work on these definitions is illustrated in the fact that the committee has sought the assistance of the medical profession in proposing and defining terms "generally associated with electrical engineering in this country."

Although the sectional committee and its associated subcommittees were organized originally to compile the edition approved in 1941, and in a short time the present 1957-1958 revision will have been completed, the committee is a continuing one. It still exists for the purpose of considering and taking appropriate action on any new terms which may be submitted to it. Already definitions for proposed American Standards have been submitted to it for approval. Were the sectional committee not active, a serious impasse would result.

These standard definitions would never have been possible were it not for the voluntary contribution of time and effort by the several subcommittee chairmen and members. Being experts in their several fields they must necessarily hold important positions of high responsibility. Yet they have devoted much of their valuable time, combined with considerable traveling, to make possible this important glossary.

American Standard Definitions of Electrical Terms are already available as follows:

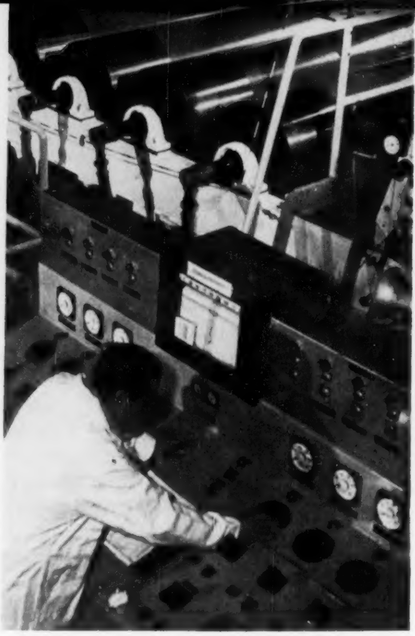
Rotating Machinery, C42.10-1957	$1.20
Switchgear, C42.20-1956	$1.20
Industrial Control Equipment, C42.25-1956	$0.80
Instruments, Meters and Meter Testing, C42.30-1957	$1.20
Generation, Transmission and Distribution, C42.35-1957	$1.20
Electrochemistry and Electrometallurgy, C42.60-1956	$0.60
Electron Devices, C42.70-1957	$1.00
Electrobiology including Electrotherapeutics, C42.80-1957	$0.60
Mining, C42.85-1956	$0.60

Publication of a number of additional standards is expected early in 1958:

Transportation, C42.40-1956
Transportation—Air, C42.41-1956
Transportation—Land, C42.42-1956
Transportation—Marine, C42.43-1956
Illuminating Engineering, C42.55-1956
Communications, C42.65-1957
Miscellaneous, C42.95-1957

U. S. delegation at 1957 meeting of ISO/TC 61 was well qualified in plastics technology. Left to right—N. A. Skow, director of research, Synthane Corporation (Society of Plastics Engineers); G. M. Kline, chief, Division of Organic and Fibrous Materials, National Bureau of Standards; R. K. Witt, Associate Professor of Chemical Engineering, Johns Hopkins University; Robert Burns, executive secretary, Materials Advisory Board, National Academy of Sciences; C. Howard Adams, leader of delegation; E. Y. Wolford, manager, Plastics Technical Service, Koppers Company, Inc, Chemical Division; Paul E. Willard, research director, Ohio-Apex Division, Ford Machinery and Chemical Corporation; A. C. Webber, research supervisor, E. I. du Pont de Nemours & Company, Experiment Station.

Monsanto Chemical Co.



Calendering operation during production of vinyl film.

USA Selected for Plastics Meeting

Report by **C. Howard Adams**

THE 1958 sessions of ISO Technical Committee 61, Plastics, will be held in Washington the week of November 3-8. Delegates have been invited to participate in a symposium on plastics testing and standardization preceding the meeting. This will be held in Philadelphia on October 30-31, 1958. The symposium is scheduled to follow the fall meeting of ASTM Committee D-20 so that delegates may attend the meeting and observe U.S. plastics standardization at work. The American group is sponsoring the symposium and will be the host for the Washington meeting of TC 61. The American group for ISO/TC 61 was organized by ASTM Committee D-20 and works under the committee's leadership. It is responsible for presenting the USA viewpoint on international proposals concerning plastics to the American Standards Association, the USA member of the International Organization for Standardization. ASA holds the secretariat for TC 61.

Plans for the 1958 meeting were announced at the committee's Seventh Annual Meeting, held at Bürgenstock, Switzerland, on July 8-13, 1957.

The 1957 meeting was a most productive one, with action taken on 16 methods of test. This makes a total of 24 Draft ISO Recommendations that have been developed by this committee. These include methods for Determination of Percentage Methanol Soluble Matter of Polystyrene; Determination of Free Phenols in Phenol-Formaldehyde Mouldings; Thermal Stability of PVC and Related Copolymers and Their Compounds by the Congo Red Method; and Determination of the Izod Impact Resistance of Rigid Plastics (Izod Impact Flexural Tests), which have already simplified the job of selling and buying plastics on a world-wide basis. Internationally accepted standards on plastics are important to U. S. industry on at least two counts. First, the average American plastics manufacturer is doing a significant amount of international business. He can now handle his specification testing with one international group of methods rather than many national groups. Secondly, many U. S. concerns have far flung plastics operations and more appear to be on the horizon. International methods for plastics make it possible to set up the quality control and testing laboratory in country "A" with the same equipment, the same building design layout, and the same conditioning facilities as for countries "B" "C" . . . . . . "Z." This adds up to dollars saved by the U. S. plastics industry in international commerce.

The attendance at Bürgenstock reached a new high of 100, with 15 participating nations and one observer country represented. Observers were present from the International Electrotechnical Commission, the International Union of Pure and Applied Chemistry, and the International Congress on Plastic Materials. Dr G. M. Kline, National Bureau of Standards, served as chairman of the meeting. The co-chairman was Dr

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Mr Adams, Monsanto Chemical Company, St Louis, Mo, is chairman of the American group for ISO/TC 61, and was leader of the American delegation to the committee's meeting in Switzerland, July 3-8, 1957.

W. Fisch (Ciba Co, Switzerland). N. A. Skow and H. Maurer (Secretariat SNV, Switzerland) functioned in the secretarial role.

The most significant highlight of the TC 61 year was the action taken by ATCO (coordinating committee on atmospheric conditioning for testing) at its first meeting in Paris on May 6 and 7, 1957. This was reported by Alfred C. Webber, E. I. du Pont de Nemours and Company, Wilmington, Delaware, the TC 61 alternate representative on ATCO at the Bürgenstock meeting. In essence, it follows the recommendations of TC 61 made at The Hague in 1956. These recommendations advised each technical committee to adopt the fewest possible test and conditioning atmospheres from the following combinations:

Temperature	*Relative Humidity*
20 C	65%
27 C	65%
23 C	50% (ASTM D 618)

Another important development was the approval for circulation as first draft ISO proposal of three methods on preparation of test specimens. These are the first products of Working Group 7, Preparation of Standard Test Specimens, one of the newer working groups.

The committee also acted favorably on the recommendation that one method for standard atmospheres replace the two previously circulated. This and the polyethylene melt flow method will be circulated as Third Draft ISO Proposals. Included in the methods approved for circulation as First Draft ISO Recommendations were Izod and Charpy Impact Resistance; Incandescence Resistance of Thermosets; Thermal Stability of PVC by the Congo Red and Discoloration Methods; and Bleeding of Colorants from Plastics.

Four methods were approved for submission to the ISO Council, including Boiling Water Absorption; Percentage Methanol Soluble Matter of Polystyrene; Free Phenol in Phenolic Mouldings; and Free Ammonia and Ammonium Compounds in Phenolic Mouldings.

Two resolutions were approved pertaining to TC 61 cooperation with other ISO Technical Committees. The first of these dealt with a request from ISO/TC 5, Subcommittee 6, Plastics Pipe, that TC 61 study methods of test for ageing PVC tubes under stress. In reply, TC 61 indicated that it could not at present undertake such a program. The other resolution offered TC 61 cooperation with TC 6 on Paper in any questions which may arise in the field of plastics. In line with the committee's policy of rotation of leadership, following the meeting the leadership of Working Group 1, Nomenclature and Definitions, passed from AFNOR, France (Pierre duBois) to the United Kingdom, with A. A. Tomkins designated as the new leader. Czechoslovakia assumed the leadership of Working Group 6, Ageing, Chemical and Environmental Resistance, in the person of B. Dolezel, in place of UNI, Italy (Piero Ghersa).

An invitation to hold the 1959 meeting in Germany was tendered by the German delegation. The probable site is Munich.

Working Group Activity

The laborious task of developing a list of equivalent terms pertaining to plastic technology has been completed by Working Group 1 on Nomenclature and Definition and will be circulated very shortly to the member bodies of TC 61 as a first draft ISO recommendation.

Working Group 2 on Mechnical Properties has a very ambitious program. It has under active development methods of test for modulus of elasticity, dynamic properties, compression, hardness, shear and creep. Test methods involving small specimens are also scheduled for study.

The future program of Working Group 3 on Standard Laboratory Atmospheres and Conditioning Procedures includes work on a procedure for conditioning of polyamides, methods for producing atmospheres of specified relative humidity, and methods for controlling relative humidity.

Tests are under development for stiffness properties of plastics as a function of temperature, flexibility of thin flexible sheet and film, flow of thermoplastic and thermosetting materials, and vicat softening point in the Thermal Properties Working Group 4.

The Physical-Chemical Properties Working Group 5 continues to be one of the most productive of ISO methods under its new leader, Mr Jacobs of The Netherlands. It is currently developing tests for acetone soluble matter in phenolic molding materials, viscosity of polyamide resins, gel time and maximum temperature during setting of unsaturated polyester resins, and pH and electrical conductivity of water extracts of plastics.

Working Group 6 on Ageing Chemical and Environmental Resistance is studying techniques for determining stability for PVC by modified discoloration methods; resistance of plastics to fungus attack, to natural and artificial light, and to change in properties after contacting chemical substances.

In addition to the three proposals that have come from Working Group 7 on Preparation of Standard Specimens, the group is developing a standard die design for producing test specimen bars 10 mm by 4 mm in cross section for flexural, heat distortion, and other methods using this size. A 50-mm disk die for chemical resistance, plasticizer loss and boiling water absorption tests is also being designed.

Working Group 8 on Electrical Properties, operating as it does in a consulting role, has reviewed several methods originating in the International Electrotechnical Commission Technical Committee 15. There was considerable discussion, both in the working group meeting and in the meeting of the leaders of the delegations, of the scope of Working Group 8 activity. It is felt that the IEC methods should reach Working Group 8 in an earlier stage of development than at present. Consideration is being given to improving the liaison between TC 61 and IEC/TC 15.

Are These Cases Work Injuries?

Rulings of the Committee on Interpretations are now being issued on whether unusual cases are to be counted as "work injuries" under the new edition of American Standard Z16.1-1954. Title of the standard is Method of Recording and Measuring Work Injury Experience. Sponsors of Committee Z16 are the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

Case numbers in this new series start with 400. The cases below represent the twelfth installment in the series under the revised edition of the standard. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply.

Cases 400-500 have been reprinted with an index prepared by the National Safety Council. To make it easy to locate all cases applying to any section of the standard, the index is arranged both numerically by paragraph number of the standard and numerically by case number. Each index reference includes a brief description of the case. Reprints are 75 cents per copy, available from ASA. Liberal discounts are offered for quantity orders.

Case 546 (5.6)

A straw-stacking laborer was employed by the company for the seasonal storage of baled straw. These bales were stacked in ricks 150 ft long, 40 ft wide, and about 33 ft high. The finished rick had nearly vertical sides. The bales were brought by truck to the stacking crew, and as the rick rose, the bales were conveyed upward by a portable electric conveyor. The prescribed method for employees to climb up and down the ricks was by climbing up the conveyor chute.

The employee in question was resting with his crew, since no trucks were in line and they were waiting for quitting time. For some unexplained reason he climbed up the vertical side of the rick, using his straw hook by hooking into the straw above him and pulling himself up. At a height of about 10 to 15 ft, the hook came out and he fell to the ground. He fractured all five metatarsal bones of the right foot.

The employee's reason for climbing up the side of the stack was apparently a daredevil action and a result of poor judgment due to immaturity. His act and method were purely voluntary and not connected with his work.

Decision: This injury should be included in the work injury rates. The committee concluded that the actions of the employee were a form of horseplay as shown in paragraph 5.6.

Case 547 (5.3)

An employee was sitting on the ground with his right leg doubled back under him while he was tightening a 4-inch flange. The flange was about 16 inches above the ground which was covered with gravel, and the area was wet due to a leak in the flange. In order to get in position to tighten the low flange and protect himself against the gravel, and to keep as dry as possible, the injured employee scooted into position on his right leg doubled back under him (a very common practice). After tightening the flange bolts he started to get up and found that his right knee was locked. When he could not straighten his knee, the gang pusher wanted to take him to the dispensary but he remarked that it was just his football knee and that it would work out.

When the knee would not release he was brought to the dispensary where he asked the nurse to jerk his knee back into place. The nurse refused to treat the case, and made an appointment for the employee to see the doctor who advised that surgery would be required if the knee did not release in a week. The knee had not released in a week, requiring surgery. The injured stated that he did not have any discomfort until rising and trying to straighten his leg. The doctor indicated that the case was an aggravation of a pre-existing weakness.

Decision: This injury should be included in the work injury rates. The committee concluded that the injury aggravated a pre-existing condition and, therefore, paragraph 5.3 applied. The members did not believe that paragraph 5.4 applied, because the event which produced the aggravation did not result from the pre-existing condition, and the cause in this case was the action of sitting in an unnatural position because of the conditions of the employee's work.

Case 548 (1.5)

An employee was loading nitrogen bottles onto a truck from a cart. He had put one wheel of the cart on the tail gate and in putting the second wheel on he felt a terrible pain in his back. This work was being done during the employee's normal working hours and with the knowledge of his supervisor. However, the job was being done for the employees' club, which was off company premises, and which was not sponsored by the company but rather by the employees for all employees.

Decision: This case should be included in the work injury rates. The committee concluded that the injury occurred in the interest of the employer, at least in some degree, since presumably the work was done in the interest of maintaining good employee relations.

Case 549 (1.6)

It was company practice to keep methyl alcohol locked up in drums, small amounts to be distributed throughout the research department. In this case it was transferred to reagent bottles well labelled with skull and crossbones, the word "poison," and the name of the contents on the bottle. Adequate orders directed employees not to use or disturb any of the materials in these laboratories, and oral instructions had been given frequently.

On the night in question, four laborer cleaners congregated during their work time on the night shift in one room, obtained and drank varying amounts of methyl alcohol mixed with coca cola, socializing for approximately one hour. Three employees died within two days, and the third recovered.

Decision: These fatalities should not be included in the work injury rates. The committee concluded that the men had taken themselves out of employment when they stole the methyl alcohol and used it in an unauthorized drinking spree.

CASE 550 (5.10)

A maintenance mechanic who was accustomed to working in the sun and doing work of all types was given the job of making and installing some metal boxes on a tractor truck for carrying material used in connection with hauling various loads on the trailer. After getting the necessary material together for this work he started welding, and continued welding nearly all day. Toward the end of his workday the employee began to feel dizzy, and upon instruction from the supervisor he sat down in the shade to rest and took ammonia inhalants. He seemed to feel better, and got up to get a drink of cold water with the intention of starting back to work. But after drinking the water he felt dizzy and nauseated again. The supervisor helped him outside where he could sit down, and at this time he began to vomit.

The supervisor called the doctor who felt that the employee had been overcome by the heat, and suggested that he be sent to the hospital. The employee remained in the hospital a few days. Twice he went back to work but did not feel well, and went home after only an hour of work.

Decision: This injury should be included in the work injury rates. The committee called attention to the fact that heat exhaustion cases should be considered work injuries if the working conditions subject the employee to greater atmospheric temperatures than are encountered by the general public. The members concluded that the welding process created a considerable amount of heat, and it seemed apparent that this employee must have been subjected to more heat than the general public.

CASE 551 (5.2)

On July 20 an employee was moving a pallet of 50-lb paper bags with a transporter. As he backed the loaded pallet into a narrow space, one of the bags fell from the pile and was wedged between the load and the wall. He reached over the load (about 3½ ft high) and rolled this bag back into position, and in doing so he felt a pain in his back. He reported the pain immediately and was sent to the company doctor who diagnosed the condition as acute lumbosacral strain with no evidence of a disc problem or neurological deficit, and gave him an ultrasonic treatment before sending him back to work at his regular job.

The employee was upset both at work because of a talk with his supervisor about his decreased quality and quantity of work, and at home because of the death of his father. On July 30 he complained to the doctor about his back; on August 1 his father was buried; at his August 2 appointment the doctor released him for light work which he was offered by the company, but the employee stated that it was too hard. On August 3 he complained about his back, but admitted that he had hurt it while washing his car. He continued to go to the doctor every other day, and returned to work on August 13. The company asked whether there was overexertion in rolling the 50-lb bag back onto the pallet; if so, did the doctor's ruling make it disabling; and if it were disabling what would be the time charges.

Decision: The committee concluded that this injury should be included in the work injury rates since there might well be overexertion in rolling a 50-lb bag onto the pallet if an unsafe position were used. The members believed that the doctor's ruling did make it disabling, and suggested the time charge should be two days; namely, for August 1 and 2. The members did not believe there should be a charge after August 2 because the employee had refused to do the light work which the doctor approved and which was available to him. Apparently the injured had worked a part of each day from July 20 through July 30.

CASE 552 (4.6.1)

Interpretation of "first reported" in paragraph 4.6.1 was requested. The company wondered if it were the date of filing the injury report or the date when medical findings indicated disabling silicosis.

Decision: The committee interpreted the intent of this paragraph as meaning that the injury should be charged to the first date it is recognized as silicosis. The members realized that with periodic examinations this might be discovered several years before any disability, and if disability was not evident at the time the silicosis was first reported, then paragraph 4.5(b) should apply.

CASE 553 (*)

No decision. Facts not complete.

CASE 554 (5.4)

An employee had a condition diagnosed as syringomyelia which meant that sensations felt by the nerve endings were not transmitted to the brain. The condition of this employee existed throughout one hand and lower arm, making it possible for him to burn or scratch his hand or arm without any knowledge of the fact.

In the course of his work this employee suffered a slight scratch of one finger without his knowledge except when he noted blood. He treated himself at home for about two weeks by which time it had become badly infected, and he reported to the company dispensary. Eventually the entire finger had to be amputated.

Decision: This injury should be included in the work injury rates. There was no question but that the employee was injured in the course of his employment, so the final results of the injury, even though aggravated by the employee's pre-existing physical condition, must be charged to the accident.

CASE 555 (1.1)

On Monday morning an employee reported to the company medical department that she had received a burn of her right ring finger from a soldering iron the previous Friday afternoon. Examination by the company doctor indicated an infection, and she was advised to see her personal physician who recommended she stay home and apply hot soaks. The employee returned to work after one day's absence, and the company questioned as to whether the injury in effect did arise out of and in the course of employment since there was such a delay in reporting the injury.

Decision: This injury should be included in the work injury rates. The committee concluded that since there was no proof to the contrary, this injury should be accepted as a work injury although there was no clear record in the case. The members believed that since there were only two specific requirements in the standard (paragraphs 5.1 and 5.2) which required a clear record of an accident, the fact that this employee did not report her injury at the time of occurrence did not rule out the case.

CASE 556 (5.1)

A driller and co-worker were jacking bit tight when the driller claimed his foot slipped on the up stroke, and he ruptured himself. Neither man remembered the exact time this occurred, but the driller had mentioned the fact that he had a stinging sensation in the area of the hernia. He did not report to the clinic until two days later since he did not want to disturb the company doctor on the day following the injury, which was a Sunday. The doctor diagnosed the trouble as an inguinal hernia and said the employee should have an operation for its repair sometime in the future. The pain was not severe enough that the employee was forced to stop work.

Decision: This hernia should not be included in the work injury rates. The committee concluded that this case did not meet the conditions of paragraph 5.1(c).

CASE 557 (5.2)

A millwright was repairing filter leaves, working in an open area, the floor of which was smooth dry concrete. The work being done required the use of a straight edge which was made of steel, 12 inches long, 1¼ inches wide, ⅛ inch thick, and weighed approximately six ounces. The piece was on the floor, and when the employee stooped over to pick up the straight edge he felt pain in his back. The company doctor diagnosed the condition as marked muscle spasm with bilateral sacro-iliac arthritis. The employee was hospitalized in leg traction.

Decision: This injury should not be included in the work injury rates. The committee concluded that there was no slip, trip, fall, or overexertion as required in paragraph 5.2, and the members believed this was quite similar to cases 432 and 443.

At its meeting in San Francisco, *November* 11 *and* 12, 1957, *the Chemical Industry Advisory Board again considered the problem of standard dimensions for lightweight corrosion-resistant pipe of special concern to the chemical industry. J. D. Mattimore reported that the problem remains as outlined in his article in the* ASTM Bulletin, *reprinted below. In picture of Board meeting in San Francisco, above, J. G. Henderson, chairman of CIAB, is at head of table.*

by **J.D. Mattimore**

The Problem of Lightweight Pipe

SHORTLY after World War II ended, it seemed apparent that the use of austenitic stainless steel for piping, particularly in the chemical process industries, was likely to enjoy a phenomenal growth. Nevertheless, for several years, the rate of growth expected was retarded by the fact that the types of stainless steel desired were not available in the form of pipe lighter than that long designated "Standard Wall." Because austenitic stainless steel costs many times as much as carbon steel, it was essential to use as light walls as would sustain the internal pressure and the other normal structural loads to which pipe is subjected. Many users, therefore, employed the expedient of using stainless steel tubing, which could be obtained in a wide variety of diameters and thicknesses. The difficulty was that such tubing was not available in sizes suitable for mating with existing fittings, flanges, and valves. Because of the great number of possible diameters and thicknesses, there were no regularly manufactured fittings suitable for fusion welding (especially by butt-welding) to the available tubes. Another complication grew out of the fact that in corrosion-resistant service, for which the stainless steels were primarily required, it was generally undesirable to silver-braze the pipe joints; and the thin walls, dictated by reasons of economy (as well as other considerations), obviated the use of threaded joints. Furthermore, such tubes were not wholly satisfactory for use with regularly available pipe-supporting devices and with stock forms of molded insulation.

All of the factors mentioned contributed to making the procurement and assembly of a lightweight stainless steel piping system difficult, time-consuming and, in the last analysis, considerably more expensive than would have been the case if lightweight stainless steel pipe and its associated components, such as fittings, had been standardized.

The Mechanical Contractors Association (then known as the Heating, Piping and Air Conditioning Contractors National Association) which, as an industry, had been among the first to feel the need for such standardization, took the initial step to that end late in 1946. As a result of their activity, the dimensions of a new lightweight schedule of stainless steel pipe, known as Schedule 10S, was published in 1948 as an appendix to ASTM Tentative Specifications for Seamless and

Welded Austenitic Stainless Steel Pipe, A 312-48T. In the following year American Standard B36.19-1949[1] for Stainless Steel Pipe was approved by the American Standards Association covering not only Schedule 10S but also Schedules 40S and 80S in sizes ½ to 12 in., inclusive. The new schedule, 10S, had approximately one-half the wall thickness of Schedule 40S, which corresponded to thicknesses formerly designated as Standard Wall, while Schedule 80S corresponded to the thickness otherwise designated as Extra Strong.

However, it soon became obvious that an even lighter weight of stainless steel pipe for chemical process services was economically desirable and, as a result of the advances that had been made in the art of fusion welding, it had been found practical, as well. Representatives of the chemical industry, the stainless steel pipe manufacturers, and the pipe fitting manufacturers met and jointly agreed upon a schedule of thicknesses, now designated as Schedule 5S, for sizes ranging from ½ to 12 in., inclusive. The thicknesses of the new schedule averaged three-fourths of the previously developed Schedule 10S over the full size range, with the more popular sizes being one-half to two-thirds as great as those of the heavier schedule. The new schedule of thicknesses was published as an appendix to Specifications A 312.

Mr Mattimore is chairman, Subcommittee on Corrosion Resistant Pipe and Fittings, ASA Chemical Industry Advisory Board, and chief engineer, Product Engineering and Research Department, Tube Turns, Louisville, Ky.

There can be no question concerning the value of the development of these two lightweight stainless steel pipe schedules to consumers, to piping contractors, and to manufacturers of pipe and especially of fittings. The result has been that these weights of stainless steel pipe and fittings are regularly stocked in at least three grades, namely, type 304, type 347, and type 316, in many places throughout the country. (Recently a trend has developed toward supplanting types 304 and 347 with type 304L, and type 316 with type 316L; this trend may ultimately reduce the types carried in stock to two.) Not only are the pipe and fittings readily available but the over-all cost of assembling stainless steel piping systems has been reduced by eliminating special fittings and adapters and obviating procurement delays.

The obvious advantages of the new standards of lightweight stainless steel pipe caused the American Standards Association's Chemical Industry Advisory Board, which had come into existence in 1950, to become interested almost immediately in promoting the use of the same schedules of thickness for other corrosion-resistant piping, such as aluminum, nickel, and copper and such of their alloys as find a use in the chemical process industries. Early in 1952, in conjunction with ASA's Mechanical Standards Board, the Chemical Industry Advisory Board requested ASTM to add the new schedules of pipe thickness to appropriate existing standards, such as ASTM Specifications for Seamless Copper Pipe, Standard Sizes (B 42) and for Aluminum-Alloy Pipe and Tube for Pressure Vessel Applications (B 274). It further requested that where no specification existed, as in the case of silicon bronze pipe, for example, they be developed.

As a result of this request, dimensions of Schedules 5S and 10S pipe were added to Specification A 274 in the 1955 edition. The next editions of ASTM Specifications for Nickel Pipe and Tubing (B 161) [American Standard H34.1-1955], Nickel-Copper Alloy Pipe and Tubing (B 165) [American Standard H34.2-1955], and Nickel-Chromium-Iron Alloy Pipe and Tubing (B 167) [American Standard H34.3-1955] will likewise show these dimensions. In actual fact, all of these materials, including some others such as the nickel-molybdenum and nickel-molybdenum-chromium alloys (more readily recognized as Hastelloy B and Hastelloy C, respectively), have been commercially available in the form of Schedule 5S and 10S for some time, prior to the development of applicable ASTM specifications, since both the aluminum and nickel-alloy pipe and tubing producers very quickly recognized the advantages to be gained thereby.

As matters stand presently, the only group of corrosion-resistant piping materials not available as Schedule 5S and 10S pipe is the copper and copper-base alloy group. For a great many years, copper pipe has, of course, been available in two thicknesses, regular and extra strong. The thicknesses of these are a few thousandths of an inch greater than standard wall and extra strong steel pipe, respectively. Additionally, copper tubing, chiefly for heat-exchanger service, has been readily obtainable in many diameters and thicknesses. Copper water tubes in three weights, designated types K, L, and M, the first being the heaviest, have also long been available. Such tubes do not meet the requirements of the chemical process industry because their outside diameters do not correspond to nominal pipe size diameters and therefore involve many of the problems mentioned in connection with stainless steel tubing. Additionally, in sizes above 5 in., their wall thicknesses are heavier than need be. This is likewise the difficulty with the product covered by ASTM Specifications for Threadless Copper Pipe, B 302-55T. In the small sizes this pipe is identical with Schedule 5S pipe dimensions but beginning with the 3½-in. size its wall thicknesses are increasingly greater than those of Schedule 5S to the point where they are considered uneconomical by the chemical industry. This is evidenced by the fact that a survey conducted by the ASA Chemical Industry Advisory Board among chem-

[1]American Standard B36.19-1949 has now been revised and is available as American Standard B36.19-1957 at $1.00 per copy. The revision consists of a reduction in the wall thickness of the 12-in. Schedule 5S pipe from 0.165 to 0.156 in.

ical companies and chemical process designers and fabricators showed that a considerable majority of those replying to the questionnaire were in favor of having copper and certain copper alloys (notably silicon bronze, copper-nickel and aluminum bronze, all of which are highly useful as corrosion-resistant materials) made available with Schedules 5S and 10S dimensions of diameter and thickness.

For quite some time the matter of providing the desired copper and copper-alloy lightweight pipe schedules has been under consideration by Subcommittee W-4 of ASTM Committee B-5 on copper and copper alloys. In view of the many sizes and thicknesses of copper pipe and tube already available (the availability of copper alloys of the types mentioned above is markedly less), there is a natural reluctance on the part of the copper industry to add other lines. To them, such a step seems in opposition to the simplification which standardization is aimed at effecting. Again, the producers take the view that the absence of orders for the schedules in question is indicative of there being no real need for them.

However, in respect to the first point, it would seem that they are failing to take into account that the chemical industry is growing at an astounding rate and that its needs for corrosion-resistant piping materials is growing concomitantly; with materials in short supply and mounting in costs, with engineering personnel difficult to come by and relatively, at least, growing scarcer, it is essential to simplify the design, procurement, erection, and maintenance of corrosion-resistant piping systems to the utmost. In this connection, it is not amiss to point out that the loss of revenue occasioned by the shutdown of a chemical process unit for even a day, as might be caused by the failure of a nonstandard component which could not readily be replaced, might far exceed the cost of the piping system in its entirety. From this point of view it may be said, then, that an increase in number of standards in a producing industry could well effect a standardization in the allied producing and consuming industries they serve, with extremely important benefits and, considered from an over-all point of view, resulting in ultimate simplification and reduction in cost.

With respect to the absence of apparent demand for Schedules 5S and 10S copper and copper alloy pipe, as evidenced by orders for them, experience demonstrates that purchasers will normally avoid ordering commodities of the type here under discussion when no recognized standard for them exists. The extra cost and the extended deliveries involved are almost always sufficient deterrents to taking such a step.

In view of the extensive use now being made of the light schedules of stainless, aluminum, nickel, and nickel-alloy pipe, with every indication that the volume of these is steadily growing, it will be interesting to see whether copper and copper-alloy pipe will retain their rightful position in the field of corrosion-resistant piping by similarly being made available to consumers, and especially to the vast chemical process industry, in the Schedules 5S and 10S dimensions.

Comment received from G. H. Bohn, Chairman, Task Group 5S and 10S Thickness in Copper and Copper-Alloy Pipe

At a meeting of Subcommittee W-4 of Committee B-5 held on January 24, 1957, the matter of adding Schedules 5 and 10 wall thickness to the various copper and copper alloy pipe specifications was discussed. It was pointed out that the identical pipe size outside diameters are covered in the three following ASTM specifications:

Specification Number		*Material*
ASTM B 42	[Amer Std H26.1-1954]	Copper pipe
ASTM B 43	[Amer Std H27.1-1954]	Red brass pipe
ASTM B 302	[Amer Std H26.1-1954]	Threadless copper pipe

Tube of the Schedules 5S, 10S, 40S or any other wall thickness may be ordered to these specifications by designating the specific wall thickness desired to go along with the listed outside diameters. It should be noted that Specification B 302 standard sizes ½ to 2 in., inclusive are even now identical with the 5S Schedule proposed.

Copper pipe or tube may also be ordered by specific outside diameter and wall thickness to ASTM Specification B 75 for Seamless Copper Tube, which covers details of all chemical, mechanical, and dimensional tolerances but does not list a specific size series.

Cupro-nickel tubes with outside diameters of pipe size are completely covered by Military Specification MIL-T-16420C, requiring only the designation of the specific wall thickness desired.

An ASTM Specification for Copper-Silicon Alloy Pipe in regular and extra-heavy sizes is up for action in Committee B-5 this year and when finally issued, thicknesses in Schedules 5 and 10 can also be ordered as explained in the first paragraph of this letter.

Copper and brass mills are eager to produce any ordered size of pipe or tube which a consumer may desire, so long as the ordered dimensions are within the mill's individual manufacturing size limitations.

• • •

Nature has made races different in order that they may accommodate themselves to their environment, but other differences, and these are many, are man-made, and are artificial. It is in the reconciliation of these unnatural differences that international standardization has its greatest opportunity to contribute to improved human welfare, international unity, and peace. — Don G. Mitchell, Chairman of the Board and President, Sylvania Electric Products, Inc.

How Standards Help Control Indirect Costs

STANDARDS applied to budgeting are credited by Dana Corporation with control of indirect costs that helps keep the company out of the red. The company's methods are described in an article "How Standards Are Used to Control Indirect Costs" in an article in *Management Methods,* May 1957. The standards, established after a thorough study of the company's operations, set forth in writing how much money each plant should spend on virtually every item. Standards were worked out for almost all items of indirect cost—janitorial services, maintenance and repair of equipment, tool replacement, obsolescence, breakage—and standard budgets were prepared for each. The work done on product inspection, for example, showed the following:

- an inventory of all gages in use was needed
- rework of inactive or obsolete gage types emerged as feasible
- vendor failures leading to excessive rejections and the need for additional inspection came to light
- excessive inspection costs were found in some cases to be due to the fact that inspection was done after a production run was completed—too late for corrective action to be taken

"Three months before the beginning of each fiscal year the Sales Department delivers a sales forecast to the central budget group," the article explains. "This forecast is broken down by product and by the plants in which each product will be manufactured.

"The central budget group forwards pertinent figures to each plant manager. These figures, plus the pre-established standards, serve as the basis for projected spending. The plant manager figures direct labor cost on the basis of current labor rates; he figures his indirect (or overhead) costs by referring to the established cost standards that have been supplied to him from the central budget group.

"The plant manager breaks down his budget department by department. Department heads or foremen are made responsible for their own part of the budget which includes the elusive indirect labor expenses in their departments, as well as indirect cost items like machine repair and electrical work, which, although not under their direct control, nevertheless, represent departmental expenditures. Department heads and foremen are not, however, held accountable for items such as taxes and depreciation.

"For example, when Plant Manager A broke down his 1957 expenses, a budget was established for Foreman B in the Blank Department. The foreman was informed that he could spend X dollars for cutting tools and Y dollars for inspection cost— and so on for each of his department's needs. Previously, the items were obtained merely by requisitioning them from the Purchasing Department, or, in the case of manpower, through the Personnel Department.

"At the beginning of each month, a budget is prepared in detail for each department at each plant. For each cost item it shows the projected budget for the month. Each department head or foreman gets a copy of the budget covering his own specific activity.

"At the end of each month, the foreman or department head gets a report of actual expenses incurred, as contrasted with the budgeted expenses. Variances are noted and the accumulated differences from the beginning of the year are recorded.

"After publication and distribution of the figures, an end-of-the-month meeting is held with the plant's own budget people. Variances are reviewed and the causes of variances determined. Sometimes the standards are found to be in error. In such cases corrections are immediately made.

"The system has provided some unforeseen advantages. Since each foreman is required to keep within a budget, he scrutinizes each expenditure carefully. Economy measures have been taken in many departments."

STANDARDS—Why and Wherefore?

Whether we realize it or not, we are constantly guided by *STANDARDS.*

Minutes and seconds are *STANDARDS OF TIME.*

Words are *STANDARDS OF COMMUNICATION.*

A red light on a traffic signal is a *STANDARD* meaning *STOP.*

The development of a standard is slow and expensive, however it too, like love can be a many splendored thing.

A standard which has been fully coordinated by industry and the Services is the culmination of the method, material, design, and degree of quality which are determined to be the simplest, most economical and most efficient for a given product.

The principal evident results of a good standard established for industry use can be listed as follows:

- Betterment of the product
- Easier procurement
- Lower cost
- Expanding production
- Ready maintenance
- Simplification of stocking problems

It pays to standardize!

(From Materials and Standards PRE-VUES, Engineering Division, Ryan Aeronautical Company, San Diego, California)

British Commonwealth Standards Conference

From B S I News

Published by the British Standards Institution

Discussions at the third Commonwealth Standards Conference held in 1957 extended for two weeks in New Delhi at the Institution of Engineers (India). It was attended by over 100 delegates from the United Kingdom, Australia, Canada, New Zealand, India, and Pakistan.

Technical sessions were arranged to deal with questions on the electrical equipment of machine tools, safety requirements for domestic appliances, electric cables, and standards for steel. Different aspects of standardization policy in the Commonwealth were discussed at more general sessions.

The recommendations of British Standard No. 2771 (Electrical Equipment of Machine Tools) were generally accepted as the basis for construction of Commonwealth standards, with certain amendments which remain to be considered.

Differences in the specifications of Commonwealth countries were discussed in their application to safety requirements for domestic appliances. Due to various operating conditions resulting from climate it was agreed that complete identity in safety requirements would not be a realistic objective, but that differences should be narrowed down to the minimum.

Information was exchanged on Commonwealth standards requirements for rubber-insulated cables, P.V.C. insulated cables, and paper-insulated cables. Tests were arranged with a view to finding a basis for standards between Commonwealth countries.

The result of the discussions on steel were that it was recommended that arrangements for a specially full exchange of views and information between Commonwealth countries should be established immediately on certain items with an important bearing on steel conservation and increased efficiency in the use of steel. The subjects recommended for such intensive coordination included specifications for steel, design procedure for steel structures, various aspects of welding, and rationalization and coordination of specifications for carbon, alloy and special steels.

A complication is the establishment in India of new steel plants and other industries in collaboration with a number of different countries which has resulted in the production and use of steels made to a wide variety of specifications. There is an urgent need, therefore, for these diverse standards to be rationalized.

Included in the general discussions were difficulties confronting Commonwealth standardization with

WHAT IS YOUR QUESTION?

How is the pressure device function number 63 used? This question concerns a pressure-sensing device which includes a Bourdon tube element and one or two small relays incorporated into a single unit or package. These units are designed so that a normally open contact of the relay, when assembled with the Bourdon tube, becomes a closed contact in the depressurized unit. How is this contact designated, 63, normally-open, or 63, normally-closed?

The answer appears in Section 2-9.7.2 of the American Standard Automatic Station Control, Supervisory and Associated Telemetering Equipments, C37.2-1956. This section reads in part: "In the case of relays or devices that operate in response to other than electrical quantities, the energizing influences for such devices are considered to be, respectively, as follows:

Relay or Device
Pressure

Energizing Influences
Increasing pressure

"Hence, the contacts of these devices should be shown in the position that they assume when the quantities to which they respond are at their lowest value."

Other devices and energizing influences are also covered by the standard, such as temperature, flow, and speed.

When will American Standard Y32.2-1954, Graphical Symbols for Electrical Diagrams, be revised to include transistor symbols?

The wide differences in opinions presently evident in the choice of graphical symbols for transistors make the development of an American Standard unwise if some other responsible body will propose a standard that can be evaluated through practice. Fortunately, the Institute of Radio Engineers has published such a standard in the December 1957 issue of its Proceedings under the designation 57 IRE 21.S3. After it has been tested by industry, it can be validated as an American Standard in a supplementary report to be appended to Y32.2-1954.

—Reply by H. P. Westman, chairman ASA Graphic Standards Board, to question at National Conference on Standards, November, 1957

the adoption by India of the metric system. Consideration was given to the consequences of this decision for intra-Commonwealth trade, and an examination of how to minimize difficulties and to secure a common approach in the International Organization for Standardization (ISO), and the International Electrotechnical Commission (IEC) with a view to the greatest possible coordination of inch and metric dimensions in standards.

On the Indian side it was made clear that the formulation of standards in the metric system was a matter of great urgency. India is anxious, however, to adopt standards which are as far as possible in line with those of the inch-pound system and, in particular, will choose its international "preferred" numbers (on which are based ranges and sizes) as closely as possible in agreement with standards on the inch system. There is to be an urgent review of India's dimensional standards to decide which can be adapted by simple conversion from the inch to the metric values, those where inch and metric dimensions can be unified from the point of view of interchangeability and performance, and those where they cannot be so unified. It was considered that the number of standards in the third category was comparatively limited, being confined to those products where highly accurate dimensioning was required.

Commonwealth countries will co-operate in trying to achieve the greatest possible reconciliation in ISO and IEC of the inch and metric systems on the lines of proposals already made to the ISO by the United Kingdom.

In the standards of Commonwealth countries both inch and metric values will be given whenever possible, care being taken that equivalence is established with close regard to the degree of accuracy of the original value. The conversion factors to be used will be those set out in a revision shortly to be issued of B.S. 350 (Conversion Factors and Tables).

Standards Outlook

by LEO B. MOORE

Mr Moore is Associate Professor of Industrial Management, Massachusetts Institute of Technology, where he teaches a full-term course in industrial standardization.

Standards in Complexity

Industry is in the midst of an era of accelerative change and increasing complexity, with no signs yet on the horizon that either progress or its rate of advance is about to slacken. But the accumulative effects of this steady advance are clearly evident in the complicated products, and in the machines that make them, which have mushroomed onto our consumer and industrial scene. What is the impact of these developments on our standardization activities and thinking?

The spirit of progress that is spurring on many of our younger industries and revitalizing our older ones prompts us to reflect that there can be no improvement without change, but there can be change without improvement. Standardization, concerned as it is with orderly, sensible improvement, should find more than alarm in its increasing activities during this period. To some extent standardization shares with the whole endeavor the responsibility for assessing the full meaning of this growth situation.

This is the time of the year when we find it hard to resist considering the new automobiles in their various models and designs, with their new power plants, rear lights, and chrome. Looking under the hood of these present-day horseless carriages, a standards engineer must find it difficult not to reflect upon the hectic jumble of wires, tubes, gadgets, and gimmicks that all but hide the engine and not declare the sight to represent truly the complex of the world developing around us. He might well recall the day not long past—but now long gone—when he would willingly take tool in hand and put the faulty machine back into good operating condition. Did some other standards engineer contribute to or condone this change?

In a similar way this problem has reared its head in the electronics industry and has even acquired a name—the issue of reliability. Here the reflection lies in comparison of the operation of the refrigerator in our kitchen with the television set in our living room. We all have handy the name of the TV repair man, whereas the refrigerator goes merrily along day in and day out and, more in point, continuously, night and day. There is no question that the tremendous advance of the electronics industry over a short period of time has contributed to this problem of reliability of components and products. But how much of the problem has been fostered by the sheer desire to effect change rather than improvement?

The observations that can be drawn concerning the effect of the complexity of products upon the consumers' point of view may also be made in terms of employee productivity, supervisory responsibility, and staff effectiveness, not to mention the work of the installation, service, and maintenance man. Complexity cannot provide for the needs of all, and as a result all to some extent suffer. Standardization with its concept of adequacy—when adequate, standardize—can inject into the situation a note of commonsense and insist upon change being improvement

FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

001 SCIENCE AND KNOWLEDGE IN GENERAL

Germany (DNA)

Definitions and denominations, general rules DIN 2330

Portugal (IGPAI)

Method of progressive numbering of sections of a document NP-113

United Kingdom (BSI)

The reduction and presentation of experimental results, by J. T. Richardson BS 2846:1957

614.8 ACCIDENTS: PREVENTION, PROTECTION, SAFETY

Bulgaria

Lineman's safety belts BDS 2600
Method of determination of lead and lead dust contents in the air of industrial plants BDS 2599

Finland (SFS)

Safety colors Z.V.1

France (AFNOR)

Protection against physical, chemical and biological agents, terminology of NF X 40-001

Germany (DNA)

Safety colors and safety signs DIN 4818
Safety rules for handling radioactive material in medical practice DIN 6843
Seamless steel containers for compressed air and oxygen of breathing devices DIN 3171
Clear glass for breathing protective equipment DIN 3184
Steel toe-caps for miner's safety shoes DIN 23322
Alcali containers for breathing protective apparatus DIN 3176
Color code for different filters for breathing protective apparatus DIN 3181

Japan (JISC)

Gas masks JIS B 9903-1955*
Noise-proof type ear-plug JIS B 9904-1955*
2 stds for medical x-ray protective screen and chair JIS T 8305/6
Safety color code JIS Z 9101

New Zealand (NZSI)

Instantaneous fire hose couplings and suction hose couplings, branch pipe and nozzle connections 1296, August 1956
The protection of eyes against accidental injury 1290, November 1956

Roumania (CSS)

Protective leather gloves and mittens STAS 2132-56

615.4 PRACTICAL PHARMACY. MEDICINES. INSTRUMENTS. HOSPITAL EQUIPMENT

Czechoslovakia (CSN)

Medical electrical sterilizers and distilling apparatus CSN 36 1435

Denmark (DS)

Hypodermic syringes, capacity and subdivision of scales DS 901
Non-surgical suture materials DS 907

Germany (DNA)

Surgical scissors DIN 13111
Tourniquet DIN 13165

India (ISI)

Coal tar disinfectant fluids, black and white IS 1061

Poland

5 stds for different surgical instruments PN Z-series 54

United Kingdom (BSI)

Cupboards (wall-fixing) for poisons and dangerous drugs BS 2881:1957
Hospital sterilizers (boiling water type) BS 2904:1957
Cheatle's sterilizer forceps (light and heavy patterns) BS 2905:1957

621.3 ELECTRICAL ENGINEERING

Austria (ONA)

Nominal voltages under 1000 v ÖNORM E 1102
7 stds for wire resistors of different wattage ÖNORM E 3000,3,5,6,8,10,13
Bare electric cables of copper, bronze, aluminum and aldrey metal ÖNORM E 4001

Belgium (IBN)

Paper-insulated lead-sheathed power distribution cables NBN 14

Canada (CSA)

Construction and test of cutout, junction, and pull boxes C22.2 No. 40-1957
Construction and test of electric storage-tank water heaters C22.2 No. 110-1957
Construction and test of electric water-pumps for other than hazardous locations C22.2 No. 108-1957
Construction and test of snap switches C22.2 No. 55-1957

China

Table of std low voltages (under 100 v) CNS 316 C 17
Table of std value of current up to 1000 amp CNS 317 C 18
Electric fans, desk-type CNS 547 C 45
Electric fans, ceiling-type CNS 597 C 49
Transformers, single- and three-phase up to 500 kva, 3300 v CNS 598 C 46
24 stds for copper wires, bare and insulated, single and stranded, different sizes CNS 666/89 C 50/73
Receptacles and plugs CNS 690 C 74
Fluorescent lamps CNS 691 C 75
Lamp holders, general service CNS 692 C 76
Lamp holders, weather-proof CNS 693 C 77
Transformers, single- and three-phase up to 750 kva, 6600 v CNS 721 C 83

Denmark (DS)

Power transformers DS 5001

France (AFNOR)

Switches, cut-out and changeover NF C 61-100
Cutout fuses NF C 64-200
Electric ranges, household NF C 73-103
2 types of electric hot-water boilers NF C 73-106,-139
Electric washing machines NF C 73-137
Electric cigar lighter NF C 73-138
Electric thermostats NF C 73-140
Electric waffle iron NF C 73-141
Electric handwasher NF C 73-142
Portable grill NF C 73-143
Electric razor NF C 73-144
Electric coffee-mill NF C 73-145

Germany (DNA)

Led-in transformers, bushings, 3 kv, 200 to 3150 a DIN 42539
4 stds for distribution diagrams on switchboard DIN 43676,-79/0,-82
Plugs for electric hearing aids, dimensions of DIN 45603
Connecting cable for electric hearing aids DIN 45604
Electrical hearing aids, press button and ring, connection dimensions DIN 45602
High frequency plug devices DIN 47278
Three-pole plug with locking device 15 a 380 v, dimensions of DIN 49449
Four-pole antenna plug and receptacle, dimensions of DIN 41588/9
Shaft ends for flange motors DIN 42955
Arrangement of terminals for 6 kv DIN 42962
Graphical symbols for power and telecommunication switches DIN 40700
Switchboard diagrams for power and telecommunication installations DIN 40719
Storage battery case 2.4 v DIN 40761
Ampere- and voltmeters for switchboards DIN 43701
Switchboard instruments for heating and similar purposes DIN 43709
Oscillating circuits of radio and television receivers, counting of DIN 45311
Graphical symbols for different types of insulated wires and cords DIN 47003
Graphical symbols used in power and telecommunication diagrams DIN 40717
Reverse current release switch 60 v for telecommunication DIN 41566
Starters for sewing machine motors DIN 42693
Crossarm plates for telegraph poles DIN 48322
Anker hooks for wooden telegraph poles DIN 48325
2 stds for bipolar plug and receptacle for 42 v 30 a DIN 14690
Nominal voltages under 100 v, rules for DIN 40001
Nominal currents from 1.25 to 6300 a, rules for DIN 40003
Graphical symbols used in power and telecommunication practice DIN 40700
Color code symbols for switchboard wiring DIN 40705
Trolley overhead line suspension wire DIN 43136
Trolley overhead line grounding wire DIN 43137
Current collector devices for mining locomotives DIN 43189
Terminal entrance insulator for overhead single cable in three-phase systems of 10, 20 and 30 kv DIN 47687

India (ISI)

Wood poles for overhead power and telecommunication lines IS 876

3 stds for loudspeakers IS 1031/3

Reinforced concrete poles for overhead power and telecommunication lines IS 785

Code of practice for installation and maintenance of induction motors IS 900

Israel (SII)

Electric plugs and socket outlets SI 32

Wall switches SI 33

Insulated bushing connectors for electric cables SI 62

Electric wiring regulations: earthing rules SI 108, Part 4

Electric wiring regulations: installation accessories SI 108, Section 305

Mexico (DGN)

Insulating tape, plastic DGN J 29-1957

Netherlands (HCNN)

Accessories for sliding conduit installations. Elbows and steel socket couplings NEN 437

Accessories for sliding conduit installations. Elbows NEN 438

Accessories for sliding conduit installations. Saddles NEN 439

Designations for insulated power cables with copper core, up to 3000 v NEN 1276

Nomenclature of electrical equipment. Lighting fittings fo. runway lighting on airfields NEN 3029

Union of South Africa (SABS)

Standard specification for rewirable type electric fuses for low and medium voltages SABS 174-1955

Standard specification for primary dry cells and batteries SABS 180-1956

United Kingdom (BSI)

Busbars and busbar connections BS 159:1957

Attachment and envelope dimensions for generators (dynamos) for I.C. engines BS 2895:1957

Liquid starters and controllers BS 140:1957

Memorandum on therapeutic x-ray equipment BS 2849:1957

621.6 FLUID DISTRIBUTION, STORAGE, CONTAINERS. PIPES. PUMPS

China

3 stds for clay pipes CNS 480/2 A4/6

Color code for pipes identification CNS 710 B 294

8 stds for different gate valves, screw and flange types CNS 711/8 B 295/302

7 stds for rules for testing pumps CNS 659/65 C 284/90

Germany (DNA)

Seamless tubes for gas and water lines DIN 1786

Structural and conduit pipes used in the manufacture of freight cars; general survey DIN 25570

Coupling for compressed air hose DIN 3483

12 stds for different types of screwed pipe unions, joints DIN 3900/9,-11/12

2 stds for seamless, cold-rolled precision steel pipes DIN 2385

Welded precision steel pipes DIN 2394

Ceramic pipes and pipe fittings DIN 1230

Pure aluminum pipes DIN 1789

Screwed pipe joints, soldering and non-soldering DIN 3870

Israel (SII)

Copper alloy sluice valves SI 222

Japan (JISC)

2 stds for bronze globe and angle valves, 10 kg/cm² pressure JIS B 2021/2

2 stds for cast iron, flange type sluice valve, 10 kg/cm² pressure JIS B 2043/4

2 stds for malleable cast iron screwed type fittings, 10 kg/cm² pressure JIS B 2301/2

Mexico (DGN)

Unfinished and galvanized steel pipes for liquids, vapors and gas DGN B 10-1957

Water cocks DGN B 83-1957

Netherlands (HCNN)

Cast iron pipes and fittings for pressure main lines NEN 3045

Water stop cocks and taps NEN 3120

Ball valve for flushing cistern NEN 2128

Spain (IRATRA)

Flanges for nominal pressures 1 to 6; dimensions UNE 19 152

United Kingdom (BSI)

Measurement of air flow for compressors and exhausters BS 726:1957

Cast iron spigot and socket soil, waste and ventilating pipes, fittings, and accessories BS 416:1957

Dimensions of screwed sealing plugs (low pressure) with unified screw threads BS 2859:1957

Hose of natural rubber with woven fabric reinforcement (special quality) BS 2860:1957

Draining taps (screw-down pattern) BS 2879:1957

Built-on coolant pumps for internal combustion engines (nominal output 1750-17500 gal/h at 30 ft maximum head)—dimensions affecting interchangeability BS 2896:1957

USSR

Rubberized fabric hoses, spring coil reinforced, for fuel oil, suction type GOST 5398-57

Deep oil-well pumps, basic sizes GOST 6444-57

Pressure hoses of rubberized fabric GOST 8318-57

621.791 WELDING AND ALLIED TECHNIQUES

Canada (CSA)

Specification for resistance welding practice W55.2-1957

Czechoslovakia (CSN)

2 stds for tin-lead solder, chemical analysis of CSN 42 0614/5

Germany (DNA)

Outlet device for compressed propane cylinders used in gas welding DIN 4816

INDIA (ISI)

Soft solder IS 193

Classification and coding of covered arc welding electrodes IS 815

New Zealand (NZSI)

Electrical performance of resistance welding apparatus 732, May 1955

United Kingdom (BSI)

Filler rods and wires for gas welding BS 1453:1957

Filler rods and wires for inert-gas arc welding. Part 1. Gas-shielded tungsten-arc welding BS 2901: Part 1:1957

621.86/.87 MECHANICAL HANDLING AND HOISTING EQUIPMENT

Austria (ONA)

2 stds for elevators, rules for construction and inspection ÖNORM B 2450, 2

Rope for cranes and winches ÖNORM M 9603

Belgium (IBN)

5 stds for different sizes and types of pallets NBN 315.0/4

Brazil (ABNT)

Construction and installation of elevators NB-30R

Bulgaria

2 stds for hand-operated portal cranes BDS 2209, 2352

Denmark (DS)

Pallets, general rules DS 364

France (AFNOR)

Hooks for hand-operated pulley blocks PN E 52-031

Germany (DNA)

2 stds for geared jacks rated 1.5, 3, 5 and 10 ton lift DIN 7355/6

Japan (JISC)

Electrical overhead traveling crane JIS B 8801

United Kingdom (BSI)

Electric lifts. Part 1. General requirements BS 2655: Part 1:1957

621.882 SCREW FIXING. BOLTS. NUTS. WASHERS

Austria (ONA)

Metric profile screw thread ÖNORM M 1561

Spring lock washers ÖNORM M 5297

China

4 stds for Whitworth screw threads, fine and pipe CNS 492/5 B 216/9

12 stds for metric screw threads CNS 496/507 B 220/31

2 stds for Knuckle threads CNS 508/9 B 232/3

4 stds for ACME-type threads CNS 511/4 B 235/8

3 stds for Buttress threads CNS 515/7 B 239/41

11 stds for tolerances and limits for Whitworth screw threads and respective gages CNS 518/28 B 242/52

11 stds for tolerances and limits of metric screw threads and respective gages CNS 529/39 B 253/63

10 stds for different types of rivets CNS 566/75 B 274/83

Czechoslovakia (CSN)

3 stds for pipe wrenches CSN 23 0041,-20,-22

France (AFNOR)

Aircraft screws and bolts; tolerances NF L 22-040

Germany (DNA)

Sheet metal screws, standard diameter of holes DIN 7975

Set screw, cup point, metric thread DIN 438

Eyebolt, screwing, Whitworth-thread DIN 580

Round lifting eye, Whitworth-thread DIN 582

Single open-end wrench DIN 894

Double open-end wrench DIN 895

Hexagon socket flat head screws DIN 7991

Riveting bolts for electrical railways and overhead cables DIN 43161

3 stds for round threads and their gages for breathing protective apparatus DIN 3182

India (JSI)

Pipe threads for gas list tubes and screwed fittings IS 554-1955

Dimensions for screw threads (below 6 mm) IS 886-1957

Japan (JISC)

Extra small screw threads JIS B 0201-1954*

2 stds for pipe threads and gages JIS B 0203-, 53-1955*

Hexagon socket headless set screws, Whitworth JIS B 1167-1956*

Hexagon socket head bolts JIS B 1166-1956*

10 stds for metric and inch system screw threads, coarse, fine, limits and tolerances JIS B 0205/14

4 stds for slotted and castle metric and Whitworth thread nuts JIS B 1159/62

Bolts, nuts, screws and rivets for export JIS B 1291

Portugal (IGPAI)

Screws, nuts and bolts, nominal diameters of NP-110

USSR

Hexagon nuts with spherical base, metric thread GOST 3392-57

Round knurled lathe nuts, metric thread GOST 8381-57

news briefs .....

• Robert D. Gidely was recently appointed chief of the Division of Safety Standards and Services in the Bureau of Labor Standards, U.S. Department of Labor. Mr Gidely has been supervising safety engineer with the Bureau for the past two years, and formerly was a senior consulting safety engineer in the industrial department of the National Safety Council.

• Sixty British Standards in the electrical field are summarized in a revised edition of the British Standards Institution's Handbook No. 9. The summaries include standards concerned with domestic electrical installations, and also recent standards for electrical appliances. Purpose of the Handbook is to provide architects, contractors, and others concerned with electrical installations with a guide to standard sizes and to the types and quality of equipment covered by the standards.

• Gordon Weston, Technical Director of the British Standards Institution, has been appointed an O.B.E., a tribute to his service in the cause of industrial standards. Mr Weston has been with the BSI since 1927 and has been active in all aspects of the work both nationally and internationally. He was appointed Assistant Director in 1948 and Technical Director in 1950.

Gordon Weston

Mr Weston was a member of the team that visited the United States in 1949 to study simplification, standardization, and specialization. He has also visited the USA in connection with ABC work on engineering standards. His last visit was in 1952 when the General Assembly of the International Organization for Standardization was held in New York.

His colleagues say of Mr Weston, "He has shown an ability to absorb information about the whole range of work involved in the preparation of standards and he possesses an enviable facility of being able to switch his mind from, say, surgical scalpels to steam separators with no apparent difficulty."

"The field of standardization is a broad one. It extends from dimensional standards to safety standards; from quality standards to standard methods of testing for operational efficiency; from standard symbols and abbreviations to standards of illumination and ventilation. In every field of endeavor modern industry has tried to make man's lot easier by the standardization of the materials and tools he uses and the methods he follows to obtain the results he desires."—J. C. Fitts, at the Standards and Codes Symposium, American Society of Heating and Air Conditioning Engineers, Washington, D. C., June, 1956.

• Does the paint on toys imported from Japan or Germany contain enough lead to poison American children? This question was raised recently in toy circles. An American Standard with the imposing title "American Standard Specifications to Minimize Hazards to Children from Residual Surface Coating Materials, Z66.1-1955," was called on to answer the question. "The standard has been able to serve as a factual basis for appraising this question," comments one of ASA's staff after answering numerous letters on the subject, as well as telephone calls from as far away as California.

• It would cost an individual company perhaps $500,000 to develop two standards that it can buy from the American Standards Association (ASA) for $4.50.

These are two of the 1687 reasons why it pays American industry to invest more in American Standards, according to a new brochure just published by ASA.

The brochure's title is "1687 Reasons Why You and Your Company Should Support the American Standards Association," and the 1687 reasons are the 1687 American Standards approved by ASA in almost every field of the American economy.

Other points made by the booklet are:

Somewhere along the line American Standards save a company money in just about everything it buys; more American Standards would save the company more money; lack of more American Standards is costing the company money; American Standards make it easier to do business with the Federal Government; international standards help the American exporter.

Copies of the 32-page booklet are available from the American Standards Association without charge.

• The International Organization for Standardization reports re-election of the national standards bodies of France, India, Italy, and the USA as members of the ISO Council. Membership will be until December 1960.

• The newly formed Institute of Printed Circuits has "development of standards" as one of its objectives. Headquarters of the Institute are in Chicago. The Institute plans to aid the user to purchase and use printed circuits more efficiently and more economically. Preliminary specifications for standard dimensional tolerances have already been completed. W. J. McGinley, Methods Manufacturing Company, Chicago, is president.

AMERICAN STANDARDS UNDER WAY

Status as of December 19, 1957

Legend — *Standards Council* — Approval by Standards Council is final approval as American Standard; usually requires 4 weeks. *Board of Review*—Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks. *Standards Board* — Approves standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Note — Send check when ordering standards listed as published to avoid service charge for handling.

ACOUSTICS, VIBRATION, AND MECHANICAL SHOCK

In Board of Review

Laboratory Measurement of Airborne-Sound Transmission Loss of Building Floors and Walls, Practice for, Z24.19-

Real-Ear Attenuation of Ear Protectors at Threshold, Method for the Measurement of, Z24.22-

Calibration of Electroacoustic Transducers, Particularly Those for Use in Water, Procedures for, Z24.24-
Sponsor: Acoustical Society of America

BUILDING AND CONSTRUCTION

American Standard Approved

Places of Outdoor Assembly, NFPA 102; ASA Z20.3-1957 (Revision of Z20.3-1950)
Sponsor: National Fire Protection Association; Building Officials Conference of America

In Board of Review

Gypsum Plasters, Specifications for, ASTM C 28-57; ASA A49.3- (Revision of ASTM C 28-55; ASA A49.3-1956)
Sponsor: American Society for Testing Materials

Billet-Steel Bars for Concrete Reinforcement, Specifications for, ASTM A 15-57T; ASA A50.1- (Revision of ASTM A 15-54T; ASA A50.1-1956)

Rail-Steel Bars for Concrete Reinforcement, Specifications for, ASTM A 16-57T; ASA A50.2- (Revision of ASTM A 16-54T; ASA A50.2-1956)
Sponsor: American Society for Testing Materials

Structural Clay Load-Bearing Wall Tile, Specifications for, ASTM C 34-57; ASA A74.1- (Revision of ASTM C 34-55; ASA A74.1-1956)
Sponsor: American Society for Testing Materials

Structural Clay Non-Load-Bearing Tile, Specifications for, ASTM C 56-57; ASA A76.1 (Revision of ASTM C 56-52; ASA A76.1-1953)
Sponsor: American Society for Testing Materials

Structural Clay Floor Tile, Specifications for, ASTM C 57-57; ASA A77.1- (Revision of ASTM C 57-52; ASA A77.1-1953)
Sponsor: American Society for Testing Materials

Brick, Methods of Sampling and Testing, ASTM C 67-57; ASA A82.1- (Revision of ASTM C 67-50; ASA A82.1-1951)
Sponsor: American Society for Testing Materials

Building Brick (Solid Masonry Units Made from Clay or Shale), Specifications for, ASTM C 62-57; ASA A98.1- (Revision of ASTM C 62-50; ASA A98.1-1953)

Facing Brick (Solid Masonry Units Made from Clay or Shale), Specifications for, ASTM C 216-57; ASA A99.1- (Revision of ASTM C 216-50; ASA A99.1-1953)
Sponsor: American Society for Testing Materials

Inorganic Aggregates for Use in Gypsum Plaster, Specifications for, ASTM C 35-57T; ASA A107.1- (Revision of ASTM C 35-54T; ASA A107.1-1956)
Sponsor: American Society for Testing Materials

Insulating Fire Brick, Classification of, ASTM C 155-57; ASA A111.22- (Revision of ASTM C 155-47; ASA A111.22-1955)
Sponsor: American Society for Testing Materials

Axle-Steel Bars for Concrete Reinforcement, Specifications for, ASTM A 160-57T; ASA G43.1- (Revision of ASTM A 160-54T; ASA G43.1-1956)
Sponsor: American Society for Testing Materials

High-Strength Steel Castings for Structural Purposes, Specifications for, ASTM A 148-57; ASA G52.1- (Revision of ASTM A 148-55; ASA G52.1-1956)
Sponsor: American Society for Testing Materials

In Standards Board

Fire Tests of Door Assemblies, Methods of, ASTM E 152-56T; ASA A2.2- (Revision of ASTM E 152-55T; NFPA 252; ASA A2.2-1956)
Sponsors: National Bureau of Standards; National Fire Protection Association; American Society for Testing Materials

CHEMICAL INDUSTRY

In Standards Board

Chemical Analysis Alkaline Detergents, Methods of Sampling, ASTM D 501-57; ASA K60.21- (Revision of ASTM D 501-55; ASA K60.21-1955)
Sponsor: American Society for Testing Materials

Common Name for the Pest Control Chemical bis(diethoxyphosphinothioylthio)methane, (ethion) K62.12-
Sponsor: U.S. Department of Agriculture

Standard Submitted

Trisodium Phosphate, Specification for, ASTM D 538-57; ASA K60.12- (Revision of ASTM D 538-55T; ASA K60.12-1956)
Sponsor: American Society for Testing Materials

DRAWINGS, SYMBOLS, AND ABBREVIATIONS

American Standards Approved

American Drafting Standards Manual, Section 3, Projections, Y14.3-1957; Section 6, Screw Threads, Y14.6-1957
Sponsors: American Society of Engineering Education; American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

American Standards Published

Schedules of Preferred Ratings for Power Circuit Breakers, C37.6-1957 (Revision of C37.6-1955) $0.40

96-Inch T-8 Instant-Start Single-Pin Hot-Cathode Fluorescent Lamp, Dimensional and Electrical Characteristics of, C78.807-1957 (Revision of C78.807-1951) $0.25

American Standards Approved

Soft or Annealed Copper Wire, Specifications for, ASTM B 3-56; ASA C7.1-1957 (Revision of ASTM B 3-54T; ASA C7.1-1955)

Tinned Soft or Annealed Copper Wire for Electrical Purposes, Specifications for, ASTM B 33-56T; ASA C7.4-1957 (Revision of ASTM B 33-53T; ASA C7.4-1953)

Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft, Specifications for, ASTM B 8-56; ASA C7.8-1957 (Revision of ASTM B 8-53; ASA C7.8-1953)

Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes, Specifications for, ASTM B 189-56T; ASA C7.15-1957 (Revision of ASTM B 189-53T; ASA C7.15-1953)

Cored, Annular, Concentric-Lay-Stranded Copper Conductors, Specifications for, ASTM B 226-56; ASA C7.16-1957 (Revision of ASTM B 226-52; ASA C7.16-1953)

Concentric-Lay-Stranded Copper Covered Steel Conductors, Specifications for, ASTM B 228-56; ASA C7.18-1957 (Revision of ASTM B 228-52; ASA C7.18-1953)

Concentric-Lay-Stranded Copper and Copper Covered Steel Composite Conductors, Specifications for, ASTM B 229-56; ASA C7.19-1957 (Revision of ASTM B 229-52; ASA C7.19-1953)

Copper Bus Bar, Rod, and Shapes, Specifications for, ASTM B 187-55; ASA C7.25-1957 (Revision of ASTM B 187-52; ASA C7.25-1953)

Seamless Copper Bus Pipe and Tube, Specifications for, ASTM B 188-56; ASA C7.26-1957 (Revision of ASTM B 188-52; ASA C7.26-1953)

Determination of Cross-Sectional Area of Stranded Conductors, Method for, ASTM B 263-56T; ASA C7.29-1957 (Revision of ASTM B 263-53T; ASA C7.29-1953)

Three-Quarter Hard Aluminum Wire for Electrical Purposes, Specifications for, ASTM B 262-56; ASA C7.35-1957 (Revision of ASTM B 262-55; ASA C7.35-1956)

Tinned Hard-Drawn and Medium-Hard-Drawn Copper Wire for Electrical Purposes, Specifications for, ASTM B 246-56T; ASA C7.37-1957

Silver-Coated Soft or Annealed Copper Wire, Specifications for, ASTM B 298-56T; ASA C7.38-1957
Sponsor: American Society for Testing Materials

Specialty Transformers, Requirements and Terminology for, C89.1-1957
Sponsor: National Electrical Manufacturers Association

In Board of Review

Laminated Tubes Used for Electrical Insulation, Methods of Testing, ASTM

D 348-56; ASA C59.14- (Revision of ASTM D 348-52; ASA C59.14-1954)

Laminated Round Rods Used for Electrical Insulation, Methods of Testing, ASTM D 349-56; ASA C59.15- (Revision of ASTM D 349-52; ASA C59.15-1954)

Electrical Insulating Oils, Method for Sampling, ASTM D 923-56; ASA C59.21- (Revision of ASTM D 923-49; ASA C59.21-1951)

Natural Block Mica and Mica Films Suitable for Use in Fixed Mica-Dielectric Capacitors, Specifications for, ASTM D 748-54T; ASA C59.26- (Revision of ASTM D 748-52T; ASA C59.26-1954)
Sponsor: American Society for Testing Materials

In Standards Board

Specialty Transformers, Safety Standard for, C33.4- (Revision of C33.4-1956)
Sponsor: Underwriters' Laboratories

Fluorescent Lamp Ballasts, Specification for, C82.1- (Revision of C82.1-1956)
Sponsor: Electrical Standards Board

GAS-BURNING APPLIANCES

In Board of Review

Domestic Gas-Fired Incinerators, Approval Requirements for, Z21.6- (Revision of Z21.6-1955)
Sponsor: American Gas Association

MATERIALS AND TESTING

In Standards Board

Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Fencing, Specification for, ASTM A 116-57; ASA G8.9- (Revision of ASTM A 116-48; ASA G8.9-1948)

Zinc-Coated (Galvanized) Iron or Steel Barbed Wire, Specification for, ASTM A 121-57; ASA G8.10- (Revision of ASTM A 121-48; ASA G8.10-1948)
Sponsor: American Society for Testing Materials

Thermometers, Specifications for, ASTM E 1.57; ASA Z7.1-1- (Revision of ASTM E 1-56; ASA Z71.1-1956)
Sponsor: American Society for Testing Materials

MECHANICAL

In Board of Review

Carbon-Silicon Steel Plates of Intermediate Tensile Ranges for Fusion-Welded Boilers and Other Pressure Vessels, Specifications for, ASTM A 201-57T; ASA G31.1- (Revision of ASTM A 201-54T; ASA G31.1-1956)
Sponsor: American Society for Testing Materials

Molybdenum-Steel Plates for Boilers and Other Pressure Vessels, Specifications for, ASTM A 204-57; ASA G34.1- (Revision of ASTM A 204-56; ASA G34.1-1956)
Sponsor: American Society for Testing Materials

High Tensile Strength Carbon-Silicon Steel Plates for Boilers and Other Pressure Vessels, Specifications for, ASTM A 212-57T; ASA G35.1- (Revision of ASTM A 212-54T; ASA G35.1-1956)
Sponsor: American Society for Testing Materials

Mild- to Medium-Strength Carbon Steel Castings for General Application, Specifications for, ASTM A 27-57; ASA G50.1- (Revision of ASTM A 27-55; ASA G50.1-1956)
Sponsor: American Society for Testing Materials

MATERIALS HANDLING

In Standards Board

Conveyor Terms and Definitions, MH4.1- (Revision of B75.1-1956)
Sponsor: Conveyor Equipment Manufacturers Association

Microscope Objective Thread, B1.11-
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Markings for Grinding Wheels and Other Bonded Abrasives, B5.17- [Revision of B5.17-1949 (R1953)]
Sponsors: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Tool Engineers

Standard Submitted

Plow Bolts, B18.9- (Revision of B18.9-1950)
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

MISCELLANEOUS

In Standards Board

Guide for Quality Control, Z1.1-

Control Chart Method of Analyzing Data, Z1.2-

Control Chart Method of Controlling Quality During Production, Z1.3-
Sponsor: American Society for Quality Control

PAINTS AND VARNISHES

In Board of Review

Tinting Strength of White Pigments, Method of Test for, ASTM D 332-57T; ASA K56.1- (Revision of ASTM D 332-55T; ASA K56.1-1956)
Sponsor: American Society for Testing Materials

Dry Mercuric Oxide, Chemical Analysis of, ASTM D 284-57T; ASA K59.1- (Revision of ASTM D 284-33; ASA K59-1941)
Sponsor: American Society for Testing Materials

PHOTOGRAPHY

American Standards Published

Chromium-Plated Surfaces for Ferrotyping, Specification for, PH4.16-1957 (Revision of Z38.8.18-1948) $0.25

Photographic Grade Potassium Iodide, KI, Specification for, PH4.201-1957 (Revision of Z38.8.201-1948) $0.25

Photographic Grade Potassium Metabisulfite, $K_2S_2O_5$, Specifications for, PH4.277-1957 (Revision of Z38.8.277-1948) $0.25
Sponsor: Photographic Standards Board

American Standard Approved

Photographic Films for Permanent Records, Specifications for, PH1.28-1957 (Revision of Z38.3.2-1945)
Sponsor: Photographic Standards Board

In Board of Review

Focal Length Marking of Lenses, PH3.13- (Revision of Z38.4.4-1942)

Distribution of Illuminance Over the Field of a Photographic Objective or Projection Lens, PH3.22-
Sponsor: Photographic Standards Board

Photographic Thermometers, PH4.7- (Revision of PH4.7-1956)

Photographic Laboratory Spring-Driven Timers, Specifications for, PH4.25-

Photographic Grade Acetic Acid, Glacial, Specifications for, PH4.100- (Revision of Z38.8.100-1949)

Photographic Grade Acetic Acid, 28-Percent Solution, Specifications for, PH4.106- (Revision of Z38.8.106-1949)

Photographic Grade Sodium Acetate, Anhydrous, Specifications for, PH4.176- (Revision of Z38.8.176-1949)

Photographic Grade Copper Sulfate, Specifications for, PH4.180- (Revision of Z38.8.180-1949)

Photographic Grade Potassium Dichromate, Specifications for, PH4.300- (Revision of Z38.8.177-1949)

Photographic Grade Potassium Permanganate, Specifications for, PH4.301- (Revision of Z38.8.178-1949)

Photographic Grade Potassium Ferricyanide, Specifications for, PH4.302- (Revision of Z38.8.179-1949)
Sponsor: Photographic Standards Board

Withdrawal Being Considered

Maximum Safe Temperatures for Photographic Processing Solutions, Method for Determining, Z38.8.19-1948
Sponsor: Photographic Standards Board

PIPE AND FITTINGS

American Standard Approved

Steel Pipe Flanges and Flanged Fittings, B16.5-1957 (Revision of B16.5-1953)
Sponsors: American Society of Mechanical Engineers; Mechanical Contractors Association of America; Manufacturers Standardization Society of the Valve and Fittings Industry

In Board of Review

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for, ASTM A 105-57T; ASA G17.3- (Revision of ASTM A 105-46; ASA G17.3-1947)
Sponsor: American Society for Testing Materials

Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service, Specifications for, ASTM A 182-57T; ASA G37.1- (Revision of ASTM A 182-56T; ASA G37.1-1957)
Sponsor: American Society for Testing Materials

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for General Service, Specifications for, ASTM A 181-57T; ASA G46.1- (Revision of ASTM A 181-55T; ASA G46.1-1956)
Sponsor: American Society for Testing Materials

Seamless Copper Pipe, Standard Sizes, Specifications for, ASTM B 42-57; ASA H26.1- (Revision of ASTM B 42-55; ASA H26.1-1956)
Sponsor: American Society for Testing Materials

Seamless Red Brass Pipe, Standard Sizes, Specifications for, ASTM B 43-57; ASA H27.1- (Revision of ASTM B 43-55; ASA H27.1-1956)
Sponsor: American Society for Testing Materials

RUBBER INDUSTRY

In Board of Review

Sample Preparation for Physical Testing of Rubber Products, Methods of, ASTM D 15-57T; ASA J1.1- (Revision of ASTM D 15-55T; ASA J1.1-1956)
Sponsor: American Society for Testing Materials

SAFETY

American Standards Approved

Safety Code for Elevators, Dumbwaiters, and Escalators, A17.1-1957 (Revision of A17.1-1955)
Sponsors: American Institute of Architects; American Society of Mechanical Engineers; National Bureau of Standards

Safety Code for Conveyors, Cableways, and Related Equipment, B20.1-1957 (Revision of B20.1-1947)
Sponsors: American Society of Mechanical Engineers; Accident Prevention Dept of the Association of Casualty and Surety Companies

In Standards Board

Electric and Gas Welding and Cutting Operations, Safety Standard for, Z49.1- (Revision of Z49.1-1950)
Sponsor: American Welding Society

Safe Design and Use of Industrial Beta Ray Sources, Z54.2-
Sponsor: National Bureau of Standards

WOOD AND WOOD PRESERVATIVES

Standards Submitted

Small Clear Specimens of Timber (Revision of ASTM D 143-52; ASA 04a-1927)

Round Timber Piles, Specification for (Revision of ASTM D 25-55; ASA 06)

Establishing Structural Grades of Lumber, Methods for, ASTM D 245-57T

Veneer, Plywood, and Other Glued Veneer Construction, Methods of Testing, ASTM D 805-52

Evaluating the Properties of Building Fiberboards, Methods of Test for, ASTM D 1037-56T

Wood Poles, Methods of Static Tests of, ASTM D 1036-55T

Ash in Wood, Method of Test for, ASTM D 1102-56

Alpha-Cellulose in Wood, Method of Test for, ASTM D 1103-55T

Holocellulose in Wood, Method of Test for, ASTM D 1104-56

Extractive-Free Wood, Method for Preparation, ASTM D 1105-56

Lignin in Wood, Method of Test for, ASTM D 1106-56

Alcohol-Benzene Solubility of Wood, Method of Test for, ASTM D 1107-56

Ether Solubility of Wood, Method of Test for, ASTM D 1108-56

One Percent Caustic Soda Solubility of Wood, Method of Test for, ASTM D 1109-56

Water Solubility of Wood, Methods of Test for, ASTM D 1110-56

Methoxyl Groups in Wood and Related Materials, Method of Test for, ASTM D 1166-55T

Wooden Paving Blocks for Exposed Pavements, Specification for, ASTM D 52-20

Cresoted End-Grain Wood Block Flooring for Interior Use, Specification for, ASTM D 1031-55

Creosote, Specification for, ASTM D 390-53

Creosote-Coal Tar Solution, Specification for, ASTM D 391-53

Zinc Chloride, Specification for, ASTM D 432-50

Chromated Zinc Chloride, Specification for, ASTM D 1032-50

Tanalith, Specification for, ASTM D 1034-50

Copperized Chromated Zinc Chloride, Specifications for, ASTM D 1271-56

Pentachlorophenol, Specifications for, ASTM D 1271-56

Ammoniacal Copper Arsenite, Specification for, ASTM D 1325-56

Modified Wood, Specification for, ASTM D 1324-57T

Creosote, Methods of Sampling and Testing, ASTM D 38-33

Coke Residue of Creosote, Method of Test for, ASTM D 168-30

Distillation of Creosote, Method of Test for, ASTM D 246-49

Volume and Specific Gravity Correction Tables for Creosote and Coal Tar, ASTM D 347-33

Benzene-Insoluble Matter in Creosote, Methods of Test for, ASTM D 367-49

Specific Gravity of Creosote, Method of Test for, ASTM D 368-33

Specific Gravity 38/15 C, of Creosote Fractions, Method of Test for, ASTM D 369-33

Water in Creosote, Method of Test for, ASTM D 370-33

Tar Acids in Creosote and Creosote-Coal Tar Solutions, Method of Test for, ASTM D 453-41

Zinc Chloride, Methods of Chemical Analysis of, ASTM D 199-50

Chromated Zinc Chloride, Methods of Chemical Analysis of, ASTM D 1033-50

Tanalith, Methods of Chemical Analysis of, ASTM D 1035-40

Copperized Chromated Zinc Chloride, Methods for Chemical Analysis of, ASTM D 1273-56

Pentachlorophenol, Methods for Chemical Analysis of, ASTM D 1274-56

Ammoniacal Copper Arsenite, Methods for Chemical Analysis of, ASTM D 1326-56

Definition of Terms Relating to Timber, ASTM D 9-30

Definition of Terms Relating to Timber Preservative, ASTM D 324-41

Definition of Terms Relating to Veneer and Plywood, ASTM D 1038-52

Nomenclature of Domestic Hardwoods and Softwoods, ASTM D 1165-52

Sponsor: American Society for Testing Materials

Reaffirmation Requested

Static Tests of Timbers in Structural Sizes, ASTM D 198-27; ASA 04b-1927

Sponsor: American Society for Testing Materials

ABC Drafting Agreement Clarified

Errors in Figures 1 and 2 of the report on the ABC Conference on Unification of Drafting Practice (MAG OF STDS, Nov 1957, p 322) have been noted by members of the ASA delegation. The author, C. E. Hilton, comments as follows:

"Figures 1 and 2 are incorrect. In addition, the phraseology used under the heading 'Screw Thread Representation,' while accurate, does not convey the complete basis for the compromise attained at Toronto. The following should serve to clarify the situation.

"Screw Thread Representation — Differing practices are followed by the UK and Canada on the one hand and by the USA on the other in representing internally threaded parts by simplified conventions. These are illustrated in Figure 1. Note the differences in types of lines used and in sectioning.

"The USA delegation contended that the use by UK and Canada of solid lines to represent both minor and major diameters of internal threads and sectioning to the major diameter might lead to confusion since this could be interpreted to represent a keyslot.

"When these differences are carried over into assembly drawings they are less evident due to the fact that the uniform practice of externally threaded parts takes precedence; nevertheless the differences do persist. Comparison of the drawings in Figure 2 illustrates that similarities stop at the end of the threaded stud. Beyond that, our differences again show.

"A compromise was attained when the USA agreed to recommend use of solid lines for both minor and major diameters of internal threads and UK and Canada agreed to recommend that sectioning of internally threaded parts be brought to the minor diameter. This is illustrated in Figure 3."

Present Practice

UK and Canada | USA | *Recommended ABC compromise*

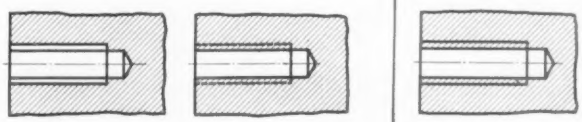

Figure 1.—*Simplified representation of internationally threaded part.*

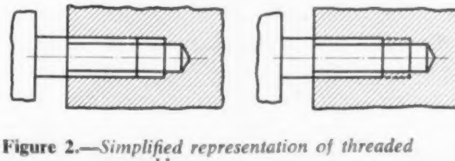

Figure 2.—*Simplified representation of threaded assembly.*

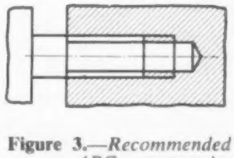

Figure 3.—*Recommended ABC compromise.*

WHAT'S NEW ON AMERICAN STANDARDS PROJECTS

Resistance Welding Machines, C88–

Sponsor: Resistance Welder Manufacturers' Association

F. R. Woodward, assistant to the

F. R. Woodward

chief sales engineer, Taylor-Winfield Corporation, Warren, Ohio, has been elected chairman of Sectional Committee C88. Mr Woodward has been associated with technical and sales-engineering activities relating to electric resistance welding for 20 years. He is chairman of the Technical Committee of the Resistance Welder Manufacturers' Association, and is also an active member of technical committees of the American Welding Society, the Welding Research Council, and the American Society of Tool Engineers.

J. P. Thorne, National Electric Welding Machines Company, Bay City, Michigan, is vice-chairman of the committee.

Secretary of Sectional Committee C88 is R. Bruce Wall, secretary-treasurer of the Resistance Welder Manufacturers' Association. Mr Wall, a graduate of the Wharton School of Business and Finance of the University of Pennsylvania, is known as a specialist in organization management for associations in the metal industries. Following his war service he joined the firm of Fernley and Fernley, before serving as secretary-treasurer of the RWMA.

At its first meeting held early this summer, Committee C88 decided its scope of work should include controls, electrodes, and electrode holders in addition to resistance welding machines. This enlarged scope has now been approved. The committee expects to develop standard definitions, classification, rating, heating efficiency, testing methods, dielectric test, standard values of current and voltage, and name plate data.

Acoustics, S1–

Sponsor: Acoustical Society of America

A. P. G. Peterson, General Radio

A. P. G. Peterson

Company, Cambridge, Mass., has been elected chairman of the recently organized committee on Acoustics, now identified as S1. The work on acoustics was originally handled as part of the scope of Sectional Committee Z24, Acoustics, Vibration, and Mechanical Shock. Committee Z24 has now been reorganized to divide the work among several committees, each handling a specific field. Committee S1 will develop standards, specifications, methods of measurement and test, and terminology, in the fields of physical acoustics, including architectural acoustics, electroacoustics, sonics and ultrasonics, and underwater sound. Its work will not include those aspects of standards that pertain to safety, tolerance, and comfort, however.

Dr Peterson received his Doctor of Science degree from the Massachusetts Institute of Technology, and has been with the General Radio Company since 1940. He has been engineer in charge of development of audio and acoustic instrumentation for the past 10 years. He is a Fellow of the Acoustical Society of America, senior member of the Institute of Radio Engineers, and a member of a number of other organizations devoted to science and engineering. He is author of numerous papers on measuring instruments and methods of measurement in acoustics and at audio frequencies.

Dr Peterson was a member of ASA Sectional Committee Z24 from 1948 until its reorganization in 1957. He was chairman of writing groups that produced the American Standard Specification for an Octave-Band Filter Set for the Analysis of Noise and Other Sounds, and American Standard Method for Specifying the Characteristics of Analyzers Used for the Analysis of Sounds and Vibrations.

J. R. Cox Jr.

J. R. Cox, Jr, Central Institute for the Deaf, St. Louis, Mo, is vice-chairman of Sectional Committee S1. Mr Cox is research associate and head of the Acoustics Laboratory

at the Institute. He is also associate professor of electrical engineering at Washington University, where he teaches courses in acoustics. His undergraduate and graduate work were done at MIT, where he received his Doctor of Science degree in Electrical Engineering. He has been a member of the faculty of summer courses on noise and industrial audiometry at MIT and Colby College, Maine, and has published several articles in the field of industrial noise control and noise measurements. At present, Dr Cox is serving on the Editorial Board of the magazine *Noise Control* and is a member of the Noise Committee of the Acoustical Society of America. He is chairman of a number of writing groups, both under the Sectional Committee on Acoustics, S1, and the Sectional Committee on Bioacoustics, S3.

Sectional Committee S1 is now voting on proposed revisions of three American Standards—Sound Level Meters for Measurement of Noise and Other Sounds, Z24.3-1944; Specification for Laboratory Standard Pressure Microphones, Z24.8-1949; and Method for Physical Measurement of Sound, Z24.7-1950.

Steel Containers, MH2–

Sponsor: Packaging Institute

Ten proposed standards for large steel containers, ranging from 5-gallon pails to 55-gallon drums, have been submitted for approval. Principal users of these containers are the petroleum industry, for shipping oils and other petroleum products throughout the world, and the manufacturing chemists. To a much smaller degree they are also used by the shortening and edible fats and the detergent industries. Purpose of the work now being done is to standardize dimensions of each capacity container in order to eliminate problems caused by different heights and designs. These differences in containers of the same capacity have caused trouble not only in handling and stacking during shipping but also in filling the containers and in storing them.

Mr Ainsworth has served for many years as Technical Director of the American Standards Association. He is now Deputy Managing Director and Assistant Secretary.

DINNSA

by **Cyril Ainsworth**

Does industry need a national standards agency? This is an old question that is still being asked today. As early as 1932 an industrial executive, faced with the task of securing the financial support of his industry for the American Standards Association, attempted to find out whether a national standardization agency is essential. He submitted a series of questions to ASA. When he reviewed the answers, the executive went to work and obtained substantial financial support from his industry through its trade association. Today this industry ranks at the top of those supporting ASA technically and financially. It is convinced that a national standards agency is essential, and that ASA, as the national standards agency in the United States, is essential to the USA's free enterprise system.

The questions presented by the executive and the answers to them were published in 1932 in a pamphlet entitled, "Does Industry Need a National Standardization Agency?" The title was abbreviated to DINNSA.

Today, organizations and individuals, many of them new in standardization work, are asking the same question.

To provide the answers in terms of present national conditions, and to give the background needed for an understanding of the underlying philosophy of ASA operations, this column will be published regularly as a series.

First it should be mentioned that from one point of view DINNSA did not paint a complete picture of ASA. Industry needs a national standards agency, but so does Government—Federal, state, and municipal. Why this is so will be developed later in this series. However, at this time it should be recalled that when ASA was organized in 1918 as the American Engineering Standards Committee, the War, Navy, and Commerce Departments became founding members. Federal Government membership increased to ten departments and agencies. Some of the representatives of these Government groups worked just as hard to build ASA along sound lines as did those from industry. Everyone can be grateful for the leadership and stimulation given by the Federal Government to ASA.

State and municipal governments do not have voting membership in ASA, but through their increasing use of American Standards they have given recognition to the essentiality of ASA. They have acknowledged the service rendered by ASA in validating, as to quality and national acceptance, standards developed by the many organizations, committees, and conferences. This validation is given through approval by ASA as American Standard.

While the Federal departments do not at the present time have membership in ASA and cannot thereby assist in the administration of its activities, their technical representatives are participating in the work assigned to the several standards boards of ASA. They also participate in the standards-developing process of national organizations, committees, and conferences.

This brief historical discussion of the relationship of Government to ASA presents one of the important characteristics of ASA. ASA is a quasi-public service body rather than an industrial organization. Its procedural, approval, and promotional services are rendered on behalf of the country as a whole, in the interest of furthering the national economy.